THE JOURNAL OF THE
AMERICAN INSTITUTE OF ARCHITECTS

Volume XII APRIL, 1924 Number 4

A Little Tour in Spain

Segovia

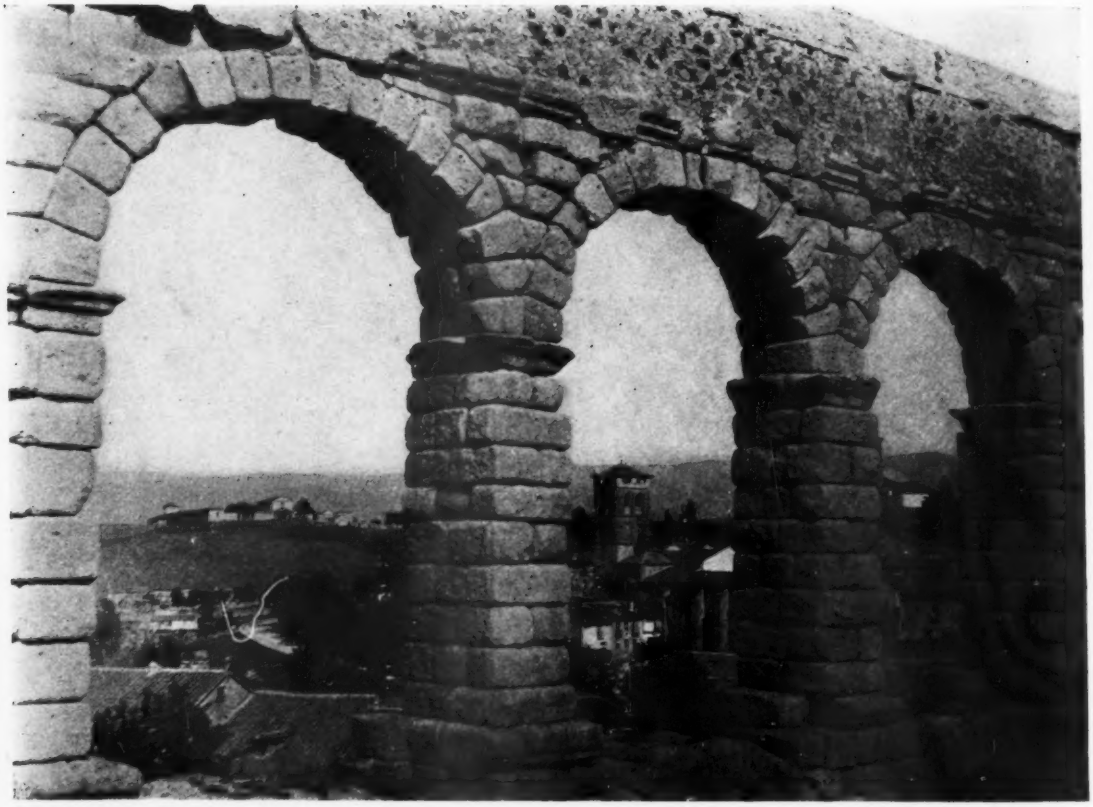
Photographs by the Author

HAVELOCK ELLIS has written a vivid description of Segovia riding its hill like a great ship with sails set towards the west, the mediæval Alcazar at the prow, and the mighty Roman Aqueduct stretching far to stern. The Spaniard Zuloaga has painted his sturdy types against the panorama of its roofs and towers. But neither poet nor painter can exhaust its infinite and varied, its beguiling and romantic grace.

Impatiently we approached it, counting the miles and the minutes and searching the horizon for the first faint outlines of the harsh Guadarrama mountains which invest it. Those who laid the railway lines in Spain contributed to the enjoyment of the traveler in one respect. As a rule the towns and villages lie at a little distance from the railroad. Diligences or omnibuses, occasionally trams, connect them with the Estacion. This and the absence of forests or other obstructions in the bare landscape make it possible to see them whole as if at arm's length. Sometimes the station serves two towns, and both may be seen a mile or two away, their brown huddle of roofs and walls and little windows sharply outlined, with the bulk of the church and belfry rising above them. They do not straggle off into the country, but look in the clear air compact and complete as though lying quietly in the palm of a great bronzed hand. At times one may count a dozen near and far and many more than a dozen churches. But over great stretches not a roof, nor a chimney nor other sign of human habitation is visible. A long way off perhaps the tiny silhouette of a donkey bearing a bent and muffled figure may mark the thread of a road; and often these lonely and patient wayfarers are the only evidence that the land is inhabited. As the mountains loomed nearer our eagnerness increased, and then suddenly at a turn we caught sight of the ancient city cresting its long ridge, the Alcazar at the prow, and the slender spire of the Cathedral pointing upward like a mast. Another turn and we had lost it, but once or twice again we sighted it before we swung into a long curve around a spur which hid it completely from view. At the station we bundled into a bus and in a jiffy were rattling away over the dusty road which led under the high arches of the Aqueduct and up into the town. We turned sharp corners at what seemed a gallop and startled pedestrians pressed themselves flat against the walls to let us pass.

In the soft summer twilight the great Roman arches had an eerie height, and the narrow streets were filling with mysterious shadows. Behind blinds lamps began to flicker and in the dim courtyards shaggy donkeys were being relieved of their burdens. We felt apologetic for the racket of our coach in the mediæval stillness, and then lonely and a little resentful of the dark houses and withdrawing populace. But all at once we burst into an open square filled with lights and people. The effect was like the rising of the curtain in a darkened theatre. Round a little pavilion in the middle of the place, where a regimental band was straining its lungs, men and women and swarms of children buzzed; while back and forth, to and fro under the arcades of the Ayuntimiento young men and girls slowly sauntered taking the evening air. In a moment we had passed into the shadow of another narrow street, but could still hear the blare of the music as we jolted to a dead stop at the door of our inn.

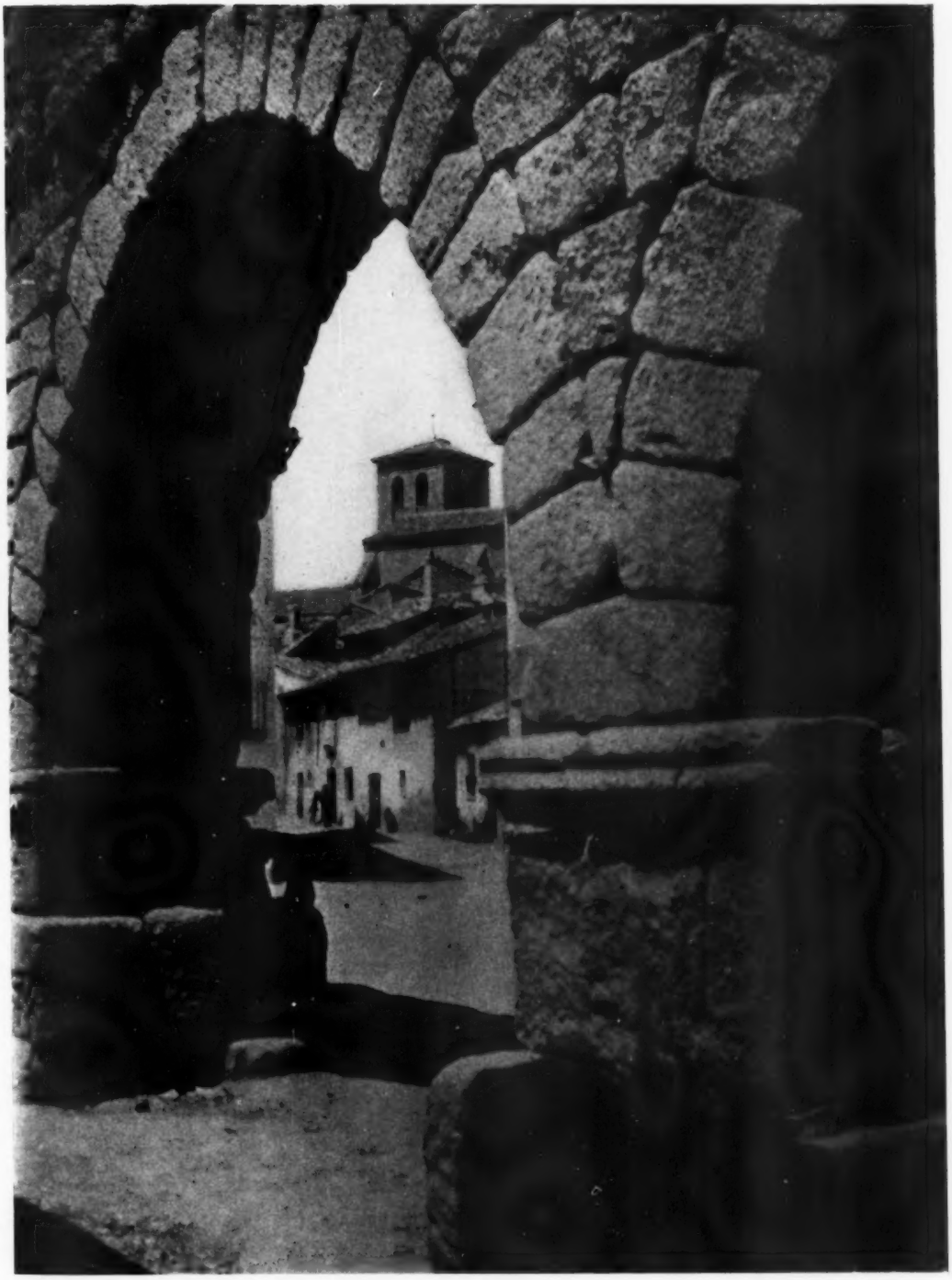
Clocks have neither the dignity nor the tyrannical authority of Spain, to which we are accustomed. As Time is infinite, the ticking off of mere minutes seems not to be a matter of paramount importance. Climate, however, is a factor to be considered on the division of the day; and in a land where the sun makes midday



SEGOVIA—THE AQUEDUCT

too uncomfortable for ardent endeavor the hours consumed by the meridional siesta may be retrieved after nightfall. Centuries of sunlight have tended to make the Spaniard appreciative of shadow. His umbrageous patios and leafy gardens, his dark interiors dimly lit by little windows, his cavernous and murky churches, are all designed to frustrate a too insistent sun. But, as the sun retreats into the purpling west, life flows forth into the streets refreshed. The dinner hour is yet a long way off, for he who dines at nine dines early. Therefore, our feet were drawn toward the bleating band in the Plaza Mayor, and for an hour or two we mingled with the animated throng. The children contributed the greater part of the animation. Their elders comported themselves with all the gravity of a proud race, and all the dignity which residence in a provincial town engenders. Even the cadets of the Artillery School, though they seemed very young, bore themselves with an air of achieved maturity, and a consciousness that destiny pressed upon them.

The great chevet of the Cathedral backs upon the square, and its soaring buttresses and pinnacles made patterns in the sky. But it was not until we could see it in the full light of day that we were to realize the whole force of its exuberant strength. In situation, Segovia may be compared to Toledo, although the hill upon which it lies with such majestic serenity is higher, apparently longer, and declines more abruptly into the valley at either side. Also its flanks are tufted with trees, and the country seems less forbidding and desolate. It is a natural fortress, the possibilities of which must have been early recognized. In Roman times it was counted a place of importance, and the Aqueduct, the largest and most impressive Roman work to be found in Spain, was built by Augustus. Its lofty arches of huge granite blocks, laid without mortar or clamps, link the city with the Fuenfria and bring the clear old water from the snow-covered heights of the Guadarramas ten miles away. There are one hundred and nineteen of these arches varying in height from twenty-three to ninety-four feet, according to the conformation of the ground. For a distance of about three hundred yards they are in two tiers. During a siege of the Moors, thirty-five arches were thrown down, but they were later rebuilt by Isabella the Catholic. For so bold and strictly utilitarian a structure the Aqueduct makes a tremendous effect seen from whatever point of view. Its arcades frame



SEGOVIA—THE AQUEDUCT

SEGOVIA—THE CATHEDRAL

delightful vistas over the housetops, with the mountains always in the background; and their rhythmic swing across the valley is as military and irresistible as the march of those Roman legions which once went clanking by.

There is much life and bustle still at times, in the Plaza del Azoquejo which lies under the highest arches, for the Plaza serves both as the market-place and as the chief entrance to the upper town. Bullock carts and donkeys from the country pass slowly across it; and from it set forth the diligences to Sepulveda and other towns hidden in the hills. El Puente, as the natives call it, figures not only in the seal of the city, but in every panoramic view. It is in fact a monument worthy to distinguish a city a hundred times greater and more important. Yet this ancient place wears other distinctions, and in addition to the Cathedral and the Alcazar, relics of two distant epochs in its glory, it is richly encrusted with Romanesque churches and Renaissance palaces, and girdled by walls of Roman and Moorish devising. Within these walls there is scarcely a structure of importance later than the sixteenth century, for then Segovia's role in the great drama of history had been played and the period of her greatness ended. Today she reposes untouched by the fever of competition, dreaming of her departed grandeur.

Lying on the borderland between two contending factions, the Moors in the South, with their northern base at Toledo, and the Christians in the North with their southern outpost at Burgos, Segovia fell sometimes under the sway of one faction and was sometimes the prize of the other. During the occupation of the Moors the Alcazar was built on the jutting promontory at the western end of the ridge above the point where the Eresma and the Clamores, after having flowed under opposite sides of its walls, mingle their waters. Here, later, Alfonso the Wise made his residence, and here from the parapets and barbizons, from turret and tower one looks down into the valley on either side and out across the rolling plains. Thread-like roads lead past towns of umber and lose them-

Segovia—San Martin

SEGOVIA—NEAR SAN MARTIN

selves in the distant haze of the hills. The centuries of Christian predominance from the eleventh through the thirteenth saw the rise of the Romanesque parish churches with their open arcades or external cloisters and their square many-tiered towers. And in the sixteenth, that culminating century for Spain as well as for Segovia, the great Cathedral was set upon the highest point of the hill like a diadem.

Thus seen from afar or as one wanders among its narrow streets and little sunny places, the drowsing town evokes echoes of a varied and valiant past that was Roman, then Moorish and finally Mediæval. The life that went on within its walls and the currents which eddied about them give it a charm and a character of which struggle and fierce endeavor are the essence. In its felicitous silhouettes and the happy adventitiousness of its clustered roofs there is no evidence of what we speak of so glibly as city planning. And, as we reflect on the vicissitudes of history and the urge of man's necessity, the credo of the city planner and that other slogan "preparedness" seem like shrill and futile whimpers in the great roll of destiny. At any rate, however planned, the effects which charm the sentimental traveler in this little city seem altogether spontaneous and fortuitous and have the naïveté of raw life itself. The three great features in its compositions were conceived in widely separated centuries, each to fulfil a vital need. The Aqueduct had no other than an intensely practical purpose, necessary to the sustenance of life itself. The fortress palace was the kingly residence and citadel around which that life clung and flourished. The Cathedral was the upward leap of the spirit toward the King whose power would never wane.

The Cathedral is the last of the great Gothic churches and built in the early dawn of the Renaissance on ground where the round arch and straight curt forms of the Romanesque were deeply rooted, it has a strange hybrid but altogether harmonious flavor. Juan Gil de Ontañón, its architect, had already built the new Cathedral at Salamanca, and here he seized the opportunity to refine and perfect his early design. Some fifty years were passed in its building, and Juan's son Rodrigo assisted in its completion. The splendid Gothic cloisters were built by Juan Campero of stone carried from the old cloisters on their site near the

SEGOVIA—THE ALCAZAR

SEGOVIA—HOUSE OF JUAN BRAVA

SEGOVIA—CLOISTERS OF SAN MARTIN AND MOORISH TOWER

SEGOVIA—MOORISH GATE AND OLD WALLS

Alcazar, by the faithful Segovians. I have spoken of the great apse, polygonal and buttressed, with its crocketted pinnacles and tracery windows. This is the most Gothic portion of the building as to detail, though the principles throughout are Gothic, albeit the crossing is crowned with a round cimborio topped by a dome very Renaissance in feeling. The noble tower set at the south angle of the bare west front rises sheer from the ground in straight, soaring lines to be capped again by a lovely Renaissance belfry. Not only are the silhouettes of the Cathedral delightful and infinitely varied, but the color of the stone, golden brown full of yellow sunlight, is as warm and happy as an old monk's face. The general air of felicity is, however, restrained, sedate and decorous. Vigorous outline and spareness of ornament combine to create an effect of sober dignity and mild austerity.

Too many are the riches of Segovia to be catalogued even briefly. They are like the heirlooms of a noble but reduced house. Though time has tarnished them they are for the most part intact, despite long centuries of disuse. They are tenderly respected and even the children flush proudly as they point the way to the stony old house of Juan Brava the Communero, and follow one around the church of San Martin with its fine portal and open Romanesque arcade facing on the small Plaza. These little places, of which there are several, are neither squares nor circles, nor even triangles, but rather sunny pockets into which the narrow streets flow, pause for a moment and then meander on. Every turn discloses some alluring picture. Through an archway there is a glimpse of some half-ruinous courtyard with sagging beams upheld by stout timbers which struggle to remain erect under their burden. A granite portal or an heraldic escutcheon refuses to be enveloped by the stucco which has overlaid the surrounding walls. Sometimes a Moorish fragment is visible, and often there are Moorish reminiscences in the latter plaster work scratched in geometrical patterns over an entire facade. A fine Reja or even the bare front of a palace, gaunt but undaunted, defies the slow erosion of time. The Gothic church of San Miguel seems, excepting the Cathedral, to be almost the only religious structure erected since the thirteenth century. It was finished in 1558. The Romanesque churches are nearly all distinguished, like San

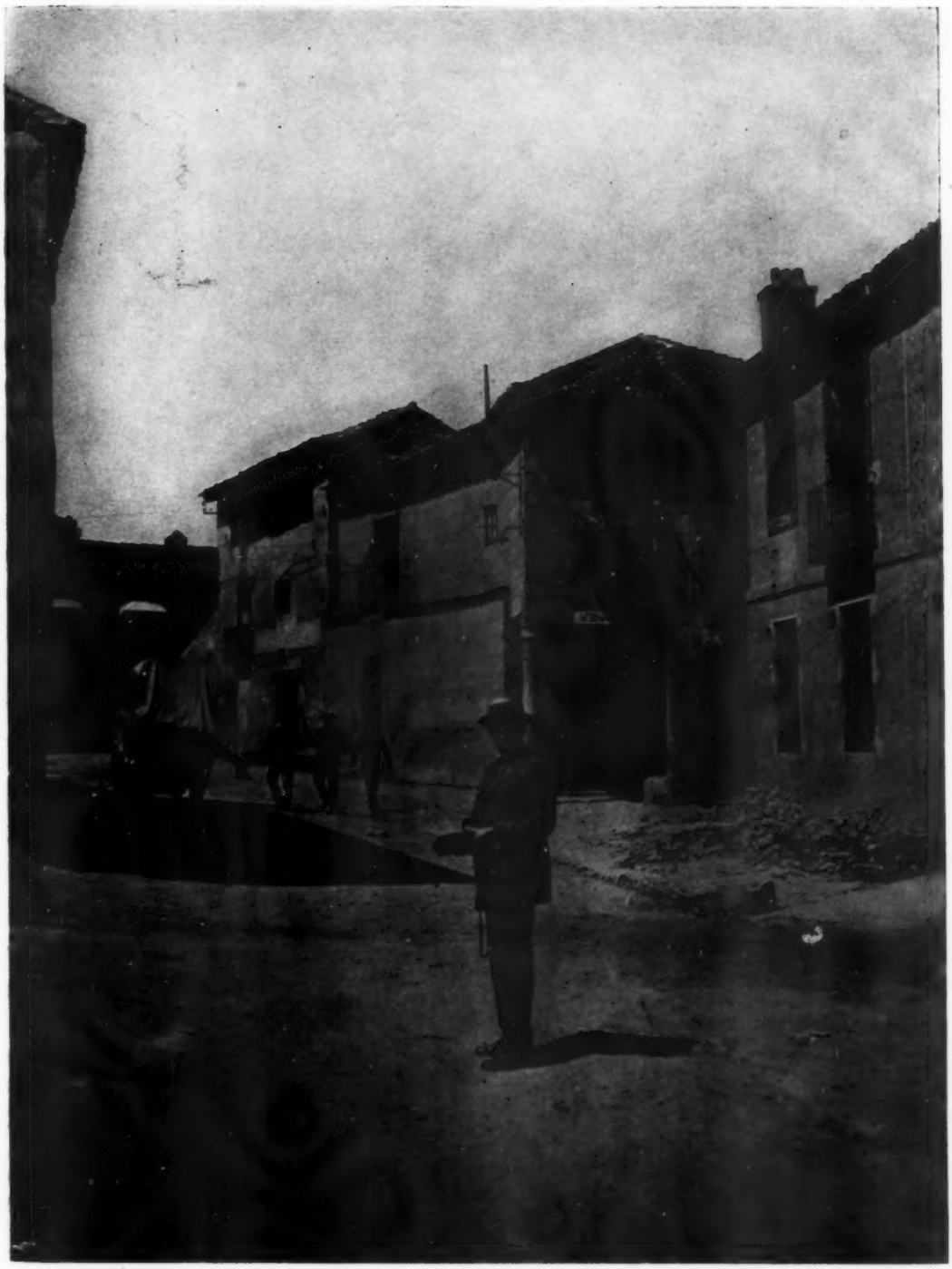
Segovia—Near San Lorenzo

SEGOVIA—OLD PALACE

Martin, by cloister-like corridors running along the exterior walls. Street thought these designed to insulate the interior against the heat. This feature[1] may also be seen in San Vicente at Avila but nowhere was it so consistently used as in Segovia. Besides San Martin there are a host of others—San Esteban, San Juan, San Millan, San Clement and San Andre.

The town is so closely crowded on its hill that a few moments' walk will bring one to the brink to look out over the roofs that lie below and the trailing suburbs in the valley. And indeed as the town was designed to command the country, so from the country may one best envisage the town. No walk could have been more lovely than ours one morning as we descended by long winding ramps and steps to the Plaza del Azoquejo and set out under the high arches of the Aqueduct along the way to San Lorenzo. Turning we looked back upon El Puente striding across the valley; and as we drew away from the town its towers began to appear above the soft brown roofs. The peasants who passed us nodded gravely. Sometimes they walked beside their panniered donkeys, sometimes they sat sideways or half facing behind; and some were astride far back in the rump and their long legs seemed just to miss the ground. The air was clear and sparkling and far off the mountains looked blue, exactly like the Valasquez backgrounds in the Prado. Life went on as leisurely in San Lorenzo as along the highway. Workmen in the shade of their own doorways plied their trades. Housewives carried water from the well, or baskets and babies in their arms as they slowly crossed the small plaza, where the round apses of the church cast fat cool shadows. Turning back we skirted the hillside, passing the deserted church of Santa Cruz. Crossing the Eresma we entered the shaded avenue of the Alameda which we possessed in solitude. Beside us the tiny river flowed without hurry, and from its opposite margin trees and verdure clambered up the steep hillside. The yellow and crumbling walls of El Parral, once a centre of learning but long since deserted, rose at our right. From the wide terrace of the Alcazar we had looked across into its cloisters but the old woman who guarded its emptiness could show us nothing but a faded retablo,

[1] Richardson may have recalled these churches in the open gallery of Trinity in Boston, though here he used the cloister-like arcade as a link between two detached buildings.



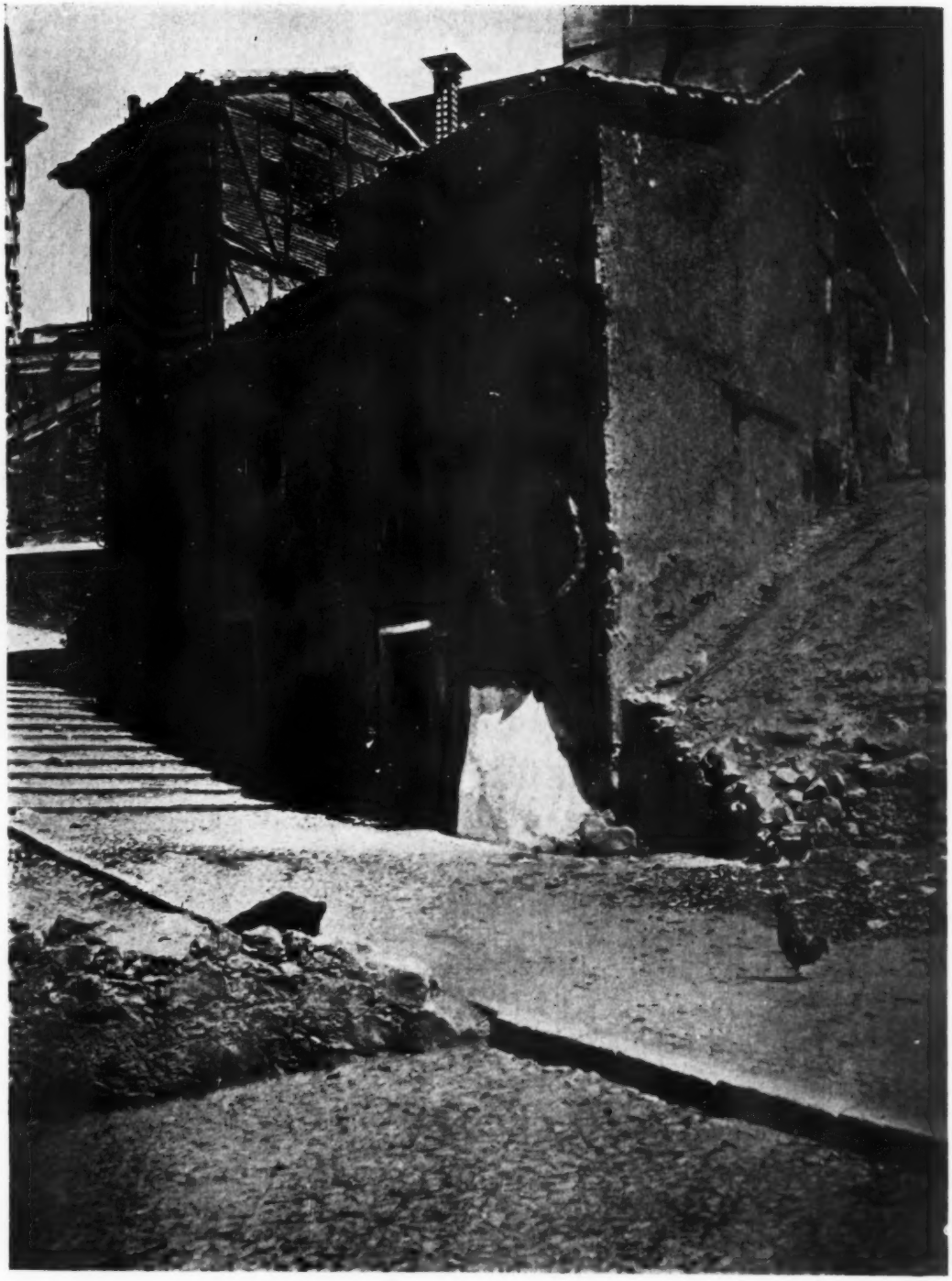
SEGOVIA—OLD HOUSES

SEGOVIA—THE AQUEDUCT

a few tombs and some broken arches. In the Paseo on the hillside, under the ramparts of the Alcazar, peacocks screamed and spread their wings. Further on standing quite aloof in the rocky plain is the little twelve-side church of Vera Cruz erected by the Templars in 1208. It was closed and bolted and we could do no more than circle round it and stare at its sturdy tower and its three apses.

A little way down the stream under the Pena Grajero, a cliff from which criminals were thrown, we came upon the Sanctuary of the Virgin of Fuencisla, built in honor of her miraculous intervention in behalf of Maria del Salto, a beautiful young Jewess, who when accused of adultery and thrown from the cliff called upon the Virgin for aid and alighted unscathed. Outside the Puerta de Valladolid we recrossed the Eresma turning the angle of the cliff to follow the Clamores where sheep grazed under the high sloping walls. The mast of the Cathedral rose before us and then, across the ravine, all its great bulk in constantly shifting perspective. This was the side from which we had first caught sight of the city and now again its whole outline appeared complete and perfect.

Small enough to be taken to the heart, Segovia is infinite in interest. Its venerable sweetness, its locked churches, its quiet by-ways in which the little donkey hoofs striking the flinty cobbles make sounds so faint that they seem to come from far off centuries, induce a gentle ecstasy. The great Zuloaga comes back after his triumphs in Paris to wander its streets by moonlight and to paint the three pretty daughters of his uncle Daniel. Uncle Daniel long ago established his studio and kilns in the old thirteenth century church of San Juan de los Caballeros, which stands on a flat shelf overlooking the valley to the north. Here the old ceramist painted his tiles and panels of faience, drawing his inspiration from El Puente, the Cathedral and their bare background of hills. Here in the old chapels he set up his furnaces to bake the clay, and in the dim nave he received the chance traveler with a fine Spanish courtesy. He looked with his flowing beard and keen eyes quite as the famous picture in Boston shows him, with his beloved Segovia in the distance. His three daughters—Esperanza, Candida and Theodora—still carry on his work. No more romantic studio can be imagined nor any dwell-



SEGOVIA—OLD HOUSES

SEGOVIA—THE ALCAZAR

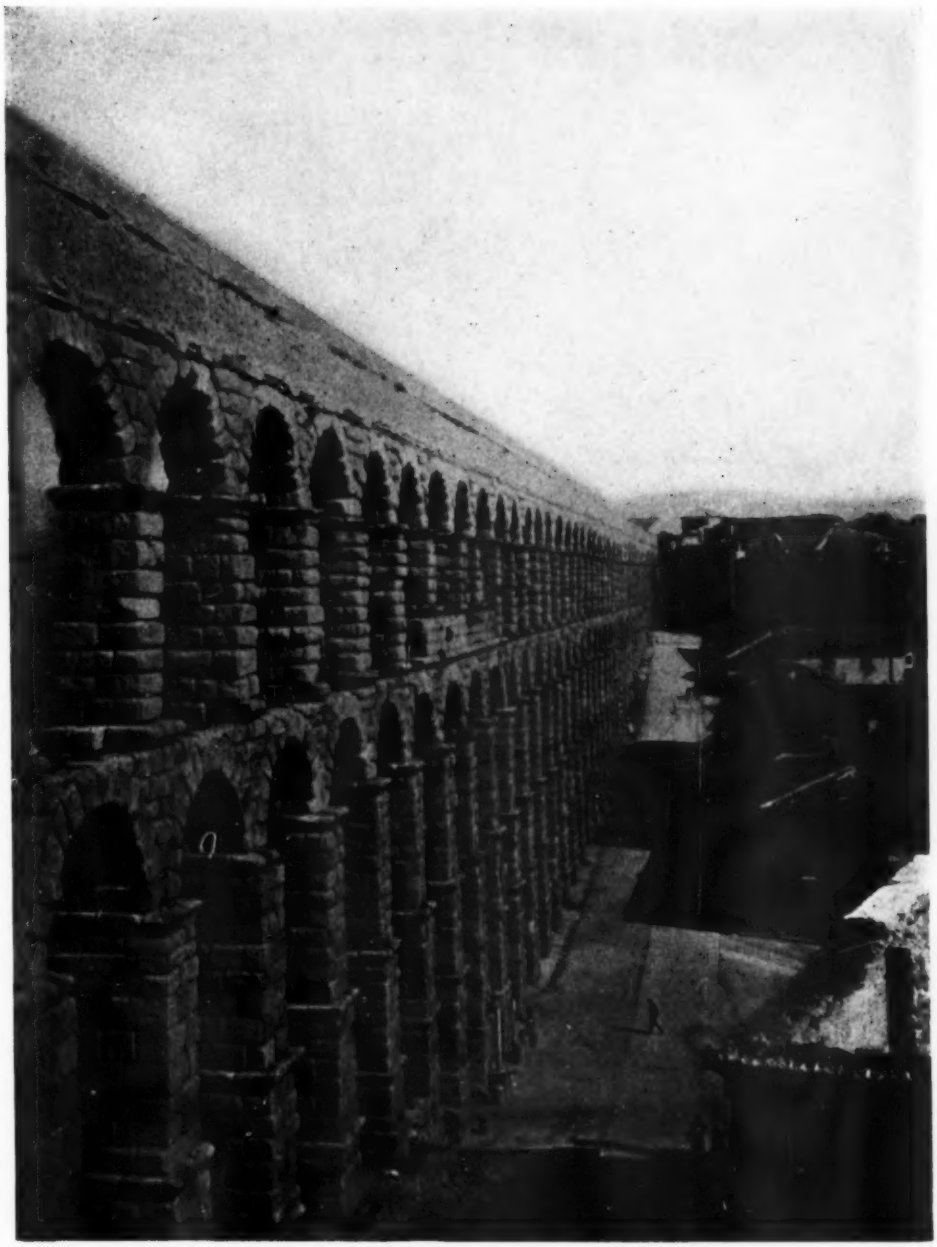
ing place more strange and charming. The blocked-up arcade is made to serve as a long gallery hung with cartoons and sketches, placques and azulejos which picture the city. In the lofts and the square tower are living quarters with the simple strong furniture fashionable when Philip the Second was King. San Juan is almost the only one of the old mediæval churches to be quickened by use, and though the haze from its ovens has no longer the fragrance of incense San Juan is still a temple where solemn rites take place.

Most of the others, locked and barricaded, are mute witnesses to a once teeming life. Some have long ago been abandoned to the slow processes of decay, and the fine carving of their portals and capitals is being gradually erased. Only the splendid tower of San Esteban has been restored and proclaims itself an object of solicitude by the network of scaffolding which surrounds it.

What clashes of passion, what great emotions, what hungry industrial efforts will stir the sleeping city to awake once more? Slowly she seems to sink into an ever deeper slumber; and the peasants from the hills with their cavalcades of mules seem to come and go almost on tiptoe.

Reluctantly we turned away as the light was failing. The lengthening shadows spread over the ancient place a rare enchantment. And the towers and tiles, the domes and arches of Segovia gently vanished into the night.

LOUIS LA BEAUME.



SEGOVIA—THE AQUEDUCT

MONTICELLO—THE EAST PORTICO

MONTICELLO—THE EAST FRONT

Monticello

Photographs by Roger Millen

MONTICELLO, the home of Jefferson, is set on a mountain top. To us, heirs of the romanticism of which he was the American pioneer, there is nothing strange in this, but in his day it was wholly new, even in Europe. From his boyhood home in the watered valley, his spirit yearned toward the heights, with that profound reverence for nature to which he once gave expression at a prospect in the Alpes Maritimes: "Fall down and worship . . . you never saw, nor will ever see such another." From Monticello itself there unrolls on the west a mountain panorama of the Blue Ridge scarcely less magnificent, while to the east stretches the endless plain, his "sea view," as he called it.

Here, when scarce out of college, he dreamed of creating, in what was then still wilderness, natural gardens with cascades, enriched by temples Greek and Gothic—the first American landscape garden. Like the young Goethe, whose youthful panegyric on the cathedral of Strassburg was then soon to appear, Jefferson began as a thorough romantic.

Like Goethe too, however—in this as in so many other respects—Jefferson soon turned to the classic. In his own final judgment, witnessed by his epitaph, he appears above all as a lover of freedom, whether in politics, in religion, or in science; but the freedom thus loved from youth was essentially the freedom of reason to reach its logical conclusions, not freedom to degenerate into formless anarchy. Trained in the law, he demanded logical sys-

MONTICELLO—THE WEST FRONT

tem in thought. He insisted, too, on going to the sources in every field: in his fundamental study of the common law, in his researches among fossils, in his Biblical criticism. Thus he was led back to the earliest precedents, among the Anglo-Saxons, the Greeks, the Romans.

Thus is explained the paradox that Jefferson, the apostle of individualism, should have chosen as his first master in architecture, Palladio, who passes as the chief representative of dogmatic authority. The reconciliation lies first in the character of reasoned law borne by Palladio's architectural system. However artificial it may seem to us, it had in common with nature this supposed lawfulness and reasonableness, which was doubtless what Palladio himself felt when he wrote: "Architecture, the imitator of Nature." Here was the relation to natural law, one of Jefferson's fundamental conceptions. With the weight of primitive and classic precedent which Palladio sought to adduce and Jefferson was quick to respect, the preponderance of spiritual agreement between them was overwhelming.

Teaching himself to draw—like Washington and like his own father, Peter Jefferson, a surveyor of land—he modelled his designs on the plates of Palladio's work and mastered the grammar of architectural detail with a new insistence on classic correctness. Hundreds of sketches and drawings by his own hand, based on his marginal calculations, are still preserved. The designs for Monticello were essentially fixed, and the first building, Jefferson's study, was already occupied, in 1771, before he sent an appeal to his business correspondent in the Tidewater to get him an architect to supervise the construction. Even then none came. There were none to be had. In all the colonies there was not then a single architect in our professional sense. Hallet and Latrobe, men of fine foreign training, did not emigrate to America until the last decade of the century. Thornton and Bulfinch, at first gentlemen-amateurs, though now revered as fathers of the profession, did not begin their architectural careers until 1789. Robert Mills, to whom the design of Monticello has sometimes been ascribed, was still unborn. The drawings of the colonial master-builders, still preserved, are childish beside Jefferson's. Only old Peter Harrison at Newport, himself always an amateur, and Hawks, Governor Tryon's man, had made

MONTICELLO—THE SOUTH LOGGIA

such drawings here before him. At that time, we learn, there were not two stonemasons in the whole county of Albemarle. Jefferson had to train his own workmen, and created a body of them that spread his ideas in the magnificent houses all up and down the South.

The house which Jefferson built at Monticello for his young bride was something then new in America. It was not merely an unadorned pile like the old buildings at Harvard College or at William and Mary, of which Jefferson wrote, "but that they have roofs, would be taken for brick kilns." Nor was it adorned with a "burden of barbarous ornaments," as Jefferson called the scroll pediments and other baroque features of the colonial houses of the James River and Annapolis. "To give these symmetry and taste," he wrote, "would not increase their cost. It would only change the arrangement of the materials, the form and combination of the members." Thus Jefferson taught the great truth that the supreme merit in architecture lies in geometrical simplicity and proportion. From this point of view, we can understand the enthusiasm of foreign travelers like the Duc de la Rochefoucauld-Liancourt, who said Jefferson was the first American to consult the arts on how to shelter himself from the weather.

As we see it today, Monticello is not as Jefferson first designed it and the Marquis of Chastellux saw it just after the Revolution. Then it was thinner and higher, with a great library in the centre upstairs, attics over the wings, and a second portico over the first, like the Venetian villas of Palladio along the Brenta. Liancourt saw its reconstruction begun in 1796, and wrote: "Monticello, according to its first plan, was infinitely superior to all other houses in America, in point of taste and convenience; but at that time Mr. Jefferson had studied taste and the fine arts in books only. His travels in Europe have supplied him with models; he has appropriated them to his design; and his new plan . . . will be accomplished . . . and then his house will certainly deserve to be ranked with the most pleasant houses of England and France." At Nîmes, as he wrote the Comtesse de Tessé, he had gazed "whole hours at the Maison Quarrée, like a lover at his mistress"; in Paris he was "violently smitten with the Hotel de Salm, and used to go to the Tuileries almost daily to look at it"; in South-

MONTICELLO—CHIMNEY PIECE IN THE MAIN HALL

MONTICELLO—CHIMNEY PIECE IN THE DINING ROOM
With Jefferson's Candelabra and Wedgwood Medallions brought from England.

MONTICELLO—THE WESTERN LAWN

ern France he was "immersed in antiquities from morning to night." It was to make his house more truly Roman that he removed the upper story and attic, and built instead, on the lines of the Hotel de Salm, the Roman dome which we see.

This was the Jefferson to whom we owe the superbly classic form of the early buildings of the Republic: The Virginia Capitol, for which he himself made the drawings and had the model made in Paris; the competition of the public buildings in Washington, the first great public competition among architects in America, of which, as Secretary of State, he wrote the program, and in which he himself submitted a design; the encouragement, when he was President, of the first trained architects from abroad, to establish, amid inconceivable difficulties, the profession and the art of architecture. This was the man who sent Houdon to Virginia to make the portrait of Washington, who brought sculptors from Italy, who imported carvings from Carrara. He deserves to be known, not only as author of the Declaration of Independence, but as the father of the arts in America.

Jefferson, the architect and patron of art, was far ahead of his time. To Philistines of the day any dabbling in the arts was beneath the attention of a public man, and at best they looked on his activity with good-natured tolerance. At worst, partisanship invented absurd canards like those of Callendar. When Jefferson took his stairway out of the entrance hall, and gave the stairs privacy in a house overrun with unbidden guests, it said the "philosopher" had forgotten the stairs. When he placed the kitchens in a basement, below a terrace from which one enjoyed the superb panorama, people said the corridor below was an underground passage built to escape from the British.

It can easily be understood that Monticello as it stands today should be a trifle disappointing. When a swarm of guests and their horses were eating Jefferson into bankruptcy in his later years, rooms had to be improvised in the cornices, the roof had to be raised and filled with garret dormers. The house was under almost constant reconstruction. Jefferson took it cheerfully, saying to a visitor: "So I hope it will remain during my life, as architecture is my delight, and putting up, and pulling down one of my favorite amusements." Then, in the

MONTICELLO—THE KITCHENS UNDER THE SOUTH TERRACE

long period of neglect and litigation in the middle of the last century, much disappeared, and the beautiful furniture brought from Paris was largely dispersed. In recent years decay has set in in some places: one can no longer walk the terraces; some of the magnificent trees are yielding to old age. There are a few incongruous additions.

But the main fabric stands unharmed, and at every point we have Jefferson's own drawings and notes, so that all could be put back in beauty precisely as it was. Every tree and bush he planted is located and marked. The place waits only to be reclaimed by the nation and restored with loving hands.

In Spring, when the Virginia woods are ablaze with the flowering shrubs and trees Jefferson loved, when the hills are golden with the broom he first planted, when the air is heavy with the scent of locust, then at Monticello we can even now recapture the magic of Jefferson's artistry. We fall under the spell of this great man, the very founder of American democracy, and worship at his grave and at his shrine, a shrine of the whole nation.

FISKE KIMBALL.

A Reconstruction of the Basilica of Constantine in the Roman Forum

Part II

The Reconstruction of the Interior

As we have said in the previous paper,* the main entrance to the basilica was at the east by a single door in the center of the narthex. There was a secondary entrance at either end of the narthex. The ancient street pavement, as it passes across the axis of the east front of the building, is two feet above the floor level of the narthex, so that it was necessary to descend three steps on entering the building from this door. Three entrances led directly from the narthex to the nave and one to each of the side aisles: the central entrance is a foot wider than the others. Traces of cramps and of bedding for marble veneer have led us to sheath the narthex with this material up to the spring of the vaults with a marble base to a height of about two feet above the floor.

Wall Decoration

In the main hall the marble veneer ranged from the floor to the top of the main cornice, a fact to which the remains of cramps testify. The marble of the walls was probably arranged in geometrical patterns, with contrasting effects of the darker and lighter varieties.[37] The actual remains show that above the spring of all the arches stucco in slight relief was used as decorations.[38] A border of tendrils, in a pattern similar to that of the marble friezes of the fourth century temple at Spoleto and the shrine of the Clitumnus of the same period outlined, in some cases, the arches of doors and windows, as for example, over the door at the north end of the narthex. There are traces of yellow on the stucco still in place. Possibly the yellow garlands were thrown into relief against a colored ground with an effect similar to that of the fifth century mosaics. The room of the narthex consisted of seven small groined vaults. The ceiling was covered with oblong panels in stucco of which eight remain in the northeast corner. The panels enclose garlands and must have been colored as were those over the arches.

Pavement of Narthex

There was enough of the pavement of the narthex left a century ago to give the pattern. (See Fig. A, Part I.) It consisted of a double row of squares, separated by bands and alternately enclosing squares and circles. Angelini and Fea represent nineteen squares in each row in their plan. Nibby mentions giallo and cipollino as among the varieties used, and he states that the slabs are thin and poor in proportion to the height of the building. White Carrara, doubtless, was employed for contrast.

Stairway in Pier Between Narthex and Aisles

In the north pier, between narthex and main hall, a small door led to a circular staircase which reached the roof of the narthex. From this roof, further to the left, a second staircase in the wall continued to the roof of the aisle. All the buttresses contained straight staircases which led to the roof of the clerestory.

* This (Part I) appeared in the Journal for February, 1924.

[37] Collection Destailleur. Kunstgewerbe Berlin 4151 No. 6 shows decoration in marble from S. Adriano.

[38] Ibid. No. 4151 No. 11 Desgodetz pgs. 105-109 shows more stucco than is now in place.

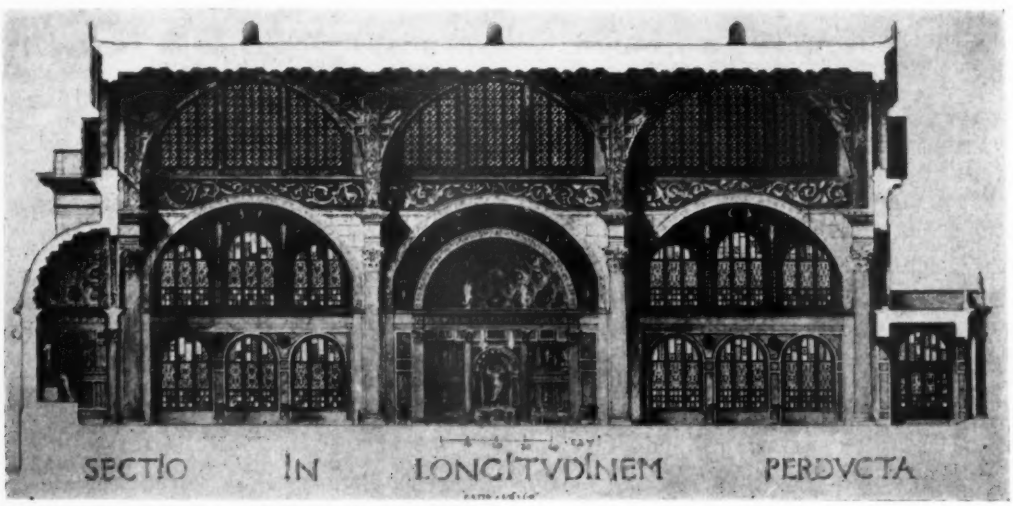


Plate II. Longitudinal. Section 2. V. L. S. Hafner

FIGURE 5.—COLUMNS FROM THE BASILICA OF SANTA MARIA MAGGIORE

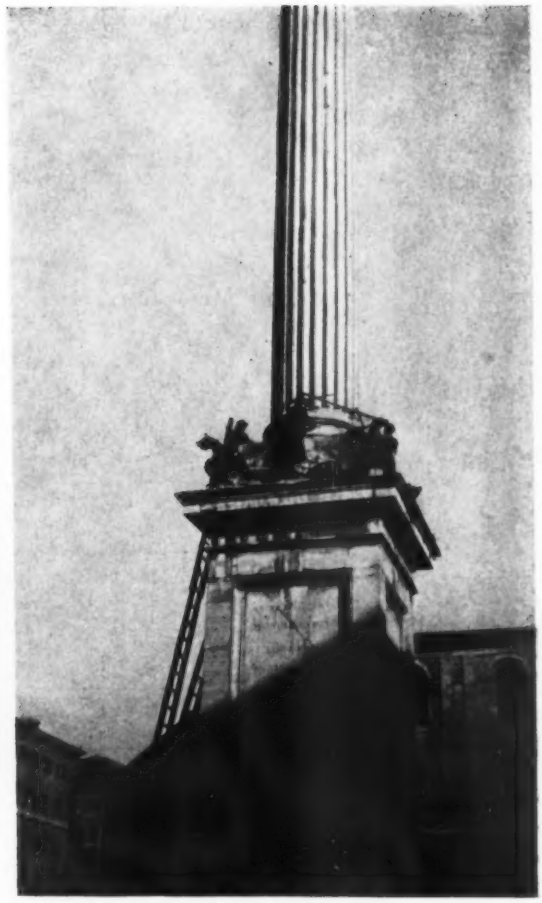


FIGURE 6.—MEASURING BASE OF COLUMN

LATER CHANGES

The upper portion of this stairway is still accessible from the level of the adjoining garden. The lower part was destroyed at some time and a place of deposit formed in its stead. Possibly to the same period as the destruction of the circular stairs is to be referred the addition of the small apse within the arch of the north doorway of the narthex and the walls which block off that end. The walls of this small apse would point to a date after the sack of the city by the Vandals in 455, when small tufa blocks were used as facing.[39] The blocking-up of the first and second windows at the north of the narthex is also late. The opening under the second narthex window from the north has been described as a stairway.[40] An examination of the recess shows that it did not extend high enough to have enclosed a stair. A segmental arch in the original wall facing, two and a half feet from the ground at the ends, spans the opening, the sides of which are formed by two parallel faced walls running through the thickness of the pier and continuing beyond the rear wall of the recess. The wall at the back is of course rubble and unfaced. It appears that these walls and the arch which spans them were constructed to lighten the pressure at this point. Probably the recess thus formed was filled in with non-bearing walls which were picked out at a period when the basilica was no longer intact. Perhaps a drain passes under the wall at this point, a branch of that which runs parallel to the short axis of the basilica at the left of the center.[41]

INTERIOR OF HALL

The narthex led into the nave and the side aisles. The latter were divided into three bays by massive brick piers nearly eleven feet thick. These, together with the unusually thick walls of the ends of the building, carried the three groined vaults which formed the clerestory, and also supported the barrel vaults which roofed the aisles: the groined vaults were, however, partly supported by the eight monolithic columns which stood in the nave, in the corners and in front of all four piers.

Our measurements of the column were made from the single extant shaft now standing in the Piazza of Santa Maria Maggiore.[42] (Figure 5.)

[39] Rivoira, Architectura Romana, p. 177.
[40] By Nibby, who also incorrectly restores circular staircases in the south piers.
[41] Lanciani, R & E p. 303.
[42] Removed from the basilica by Paul V in 1613.

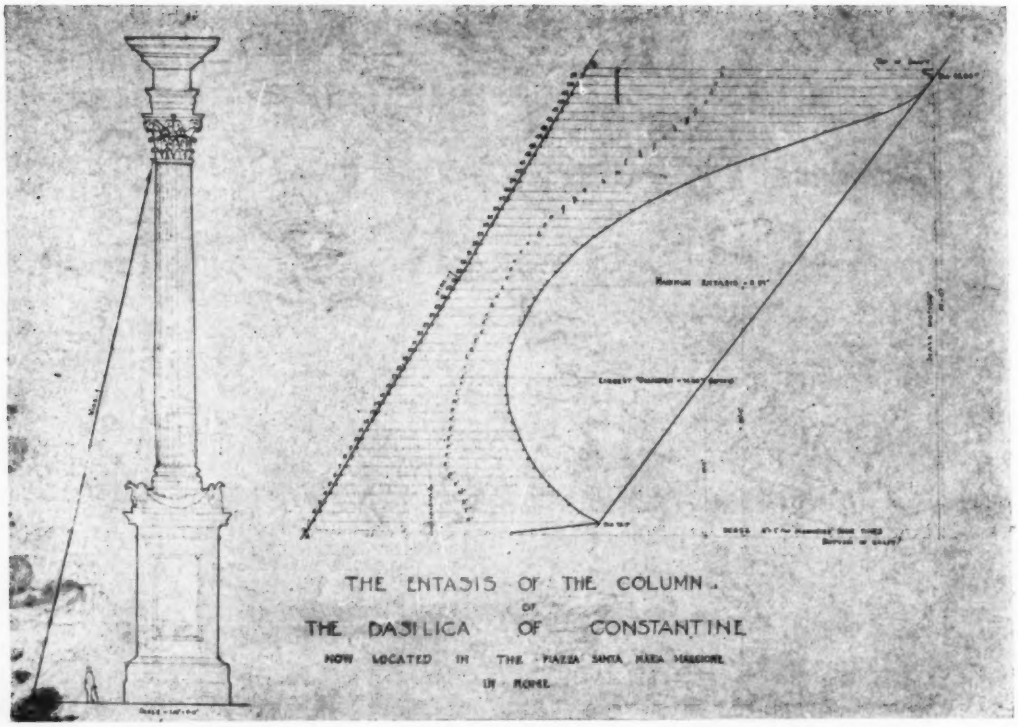


FIGURE 7.—DIAGRAM SHOWING ENTASIS OF COLUMN, DRAWN BY G. P. STEVENS AND V. L. S. HAFNER

Another small fragment is lying in the southwest bay. The column is a monolith of Proconnesian marble.[43] It has twenty-four flutes. The height of the shaft is fifty-two feet; the capital measured seven feet nine inches; the base, three and one-half feet. The capital which

[43] Porter, What Rome was built with, p. 87 for description.

PLATE III.—CROSS SECTION, HAFNER (FULL PAGE)

FIGURE 8.—PHOTOGRAPH OF INTERIOR

FIGURE 9.—SECTION OF BARREL VAULT

now supports the statue of the Virgin is not the original, than which it is somewhat lower. We have drawings of the fourth century capital, made before the removal of the column from the basilica.[44] Part of the marble architrave still embedded in the wall of the central hall gives the measurements of this element. The entasis of the shaft was described as "fortissima" by Nibby. We made measurements of the entasis of the column under the supervision of Professor Stevens, Director of the American Academy in Rome. The method employed was as follows: The upper and lower diameter were obtained by specially constructed callipers, as shown in the photograph (Figure 6) which were set at the column and then taken to the ground and the distance between the arms measured. These measurements were checked with those of the circumference of the column measured with the tape. The bottom diameter is 72.9 inches; that at the top 65.88 inches. The shaft from the base to the necking was then marked off on an arris at intervals of a foot. A spike was driven between the shaft and necking of the capital, and from this a wire was stretched to a point on the street level and strained as much as possible. This wire formed a line of reference from which horizontal measurements could be made. The horizontal distance from the point marked on the arris to the wire was measured in each case. Thus it will be seen that the shaft and the wire may be drawn out at a convenient scale, and the entasis itself plotted by means of the horizontal offsets from the wire. The maximum entasis of 2.39″ occurs at a height of 28 feet 1 inch above the bottom of the shaft. (Figure 7.)

The maximum diameter of the column is 74.88 inches and occurs at a distance of 17 feet 7 inches above the bottom of the shaft.

PIERS WHICH DIVIDE AISLES

In the piers, at either side of the archways by which the bays communicated, were niches for statues, giving the scheme of a triumphal arch. (Figure 8.)

The arch motive was repeated on a larger scale by the arched section of the aisles and the vaulting of the nave. Thus to the observer, a realization of the size of the

[44] Bramante, Uffizi No. 1712, Antonio da Sangallo No. 32 capital.

FIGURE 10.—GROINED VAULTING

FIGURE 10A.—FRAGMENT OF GROINED VAULTING

building was admirably given by the fact that the statues in the niches were only slightly larger than life-size, about seven feet in height. From these niches, the eye traveled to the arches between them, then to the larger arches at the entrance to the bays and finally to the top of the groined vaulting of the nave. In the end piers at the west, where there was no door, a square niche occupied the space between the circular niches. There are no traces of the existence of brackets supporting columns at either side of the niches, so we must conclude that the marble facing was the only decoration of the piers.

COFFERS

The coffers in the ceilings served both to ornament and to lighten the vaults. From the barrel vaults (Figure 9) in place and fragments of the groined vaults, which are still available, the method of constructing the coffers can be ascertained.

The coffers in the barrel vaults are octagonal, receding in three depths, with rows of smaller square coffers of uniform depths accompanying them. The vaults were constructed by erecting two sections of roof scaffolding to roof the bay, as far apart as the axial unit of the coffers. This wood served to support the brick ribs of the vault. When the ribs had set, the line of inverted moulds for the coffers was suspended between them. About the moulds bricks were laid following the form of the coffers, and the concrete of the vault poured on them from above. The wooden moulds could then be removed and used for adjoining rows of coffers. The smaller square coffers were hacked out of the brick ribs between the larger coffers. In the groined vaults, the brick ribbing of the groins and the brick ribbing across the nave were laid

first and moulds for coffers placed between them in small sections at a time. The coffers of the central portions were octagonal in three depths. In the lower part, where the groined vaults rested on the roof of the aisles, coffers of squares and irregular hexagons fitted into the form. The semi-dome of the apse is indented with hexagonal coffers in four depths: these were constructed in horizontal rows as the curved wall was built up.

The inner surface of the coffers was roughened with the chisel to hold the stucco lining. The edges of the different depths of the coffers were adorned with stucco mouldings in the egg and dart and various leaf patterns. Small wrought-iron dowels, still visible in some of the fragments, were used to hold these projecting ornaments. Traces of yellow and an indistinguishable darker color are found on the stucco. It is probable that rosettes of gilded stucco adorned the fields of the coffers in the main groined vaults: we have colored the fields blue. The thin layer of stucco which clings to some of the coffers in the barrel vaults is gone at the center as though a rosette had originally occupied the space. Gilt rosettes are used in the coffered vaults of St. Peter's and other churches which show an imitation of the basilica, more of the decoration of which was *in situ* in the sixteenth century.[45]

Lighting

Lamps may have been suspended by chains from some of the central rosettes of the coffers. It is generally agreed that the bronze rosettes in the ceiling of Santa Maria degli Angeli, which date from the original construction of Diocletian, served this purpose. Other artificial light could, doubtless, have been supplied by standing candelabra. On clear days, the thirty-nine windows of the nave and aisles, together with the lunettes of the clerestory, must have furnished abundant light.

Floor

The nave and aisles were paved with colored marbles. Large portions of the concrete bedding with bits of marble laid in it for levelling still cover the floor. Parts of the pavement were found intact in the excavations of 1819, and a few fragments reconstructed at the west of the south aisle are still available. Nibby, who conducted the early excavations, observed that much of this marble had been re-worked since the backs of some slabs were fluted or incised.[46] Fea[47] mentions, among the varieties used, giallo, cipollino, porphyry, serpentino and pavonazzetto. The pattern was composed of large squares,[48] enclosing alternately circles and squares laid with the sides parallel to the diagonals of the larger squares. On the plan of Angelini and Fea, the unit of design does not fit an exact number of times into each bay; sixteen in all run along the length of the entire hall without regard to the position of the dividing piers. Caristio has seventeen squares along the axis of the building. We have restored the pavement with five squares in each bay and bands three feet wide between them since it does not seem probable that symmetry was absolutely neglected in the laying of the floor.

Caristio represented the pavement of the central bay of the north aisle as differing from that of the rest of the floor, and as composed of small double squares. Recently the removal of grass in this part of the building revealed traces of cement foundation for a pavement, the units of which correspond in size with those of the other bays. Hence we must conclude that originally the entire pavement was of the same pattern and that the excavators of a century ago were led astray by the traces of a later superimposed pavement.

Wall Decoration

The walls of the hall were veneered with marble to the top of the main cornice. Here are obvious remains of the concrete bedding in the northwest corner of the building. Some of the bronze clamps which fastened the slabs are also still affixed to the wall. Part of a white marble base about two feet high is *in situ* at the right of the north apse. The marble veneering was probably arranged in a geometrical design,[49] as is shown by the imprint of slabs in the concrete bedding and also the cramps already referred to. We have been led to adopt a broad pattern, in view of the large dimensions of the building and the consequent ineffectiveness of fine details.[50] Above the spring of all the vaults stucco was used, as is shown in many places by the stucco remains. Moreover, such a combination of marble and stucco was general in the later centuries of the Roman empire. The stucco must have been painted in the so-called floral style in vogue at the same period.[51]

West Apse

Of the decoration of the original apse at the west we have no traces. In our restoration we have supposed that the decoration of the earlier tribunal was not altered. As the consols in the so-called house of Crescentius are in the same general style as those found in the north apse, we offer the suggestion that they may have formed originally part of the ornamentation of the west apse.[52]

The west apse is somewhat smaller than the north one. We have, therefore, concluded that the smaller entablature of the two found on the site and still preserved there probably adorned the front of the smaller apse, forming a characteristic architectural screen. As the west apse was badly destroyed and then restored after the earthquake which overturned the entire south-

[45] Cf. the ceiling of S. Venantius' chapel in the Lateran baptistery; also drawings in the collection Destailleur of the basilica.
[46] loc. cit. 2 p. 243.
[47] Bas. Const. p. 12.
[48] Gauckler, Bas. Chrét. p. 16—similar floor decoration used from the fourth to the seventh century.

[49] For contemporary decoration of this type see Part I.
[50] The private basilica on the Esquiline, erected by Junius Bassus who was consul in 317 A. D., and which is therefore exactly contemporary with our building, shows panels of elaborate intarsia work. This structure was converted into the church of S. Andrea in Catabarbara and finally destroyed in the seventeenth century after it had stood neglected for several hundred years. At this time some of the panels representing animals were removed to the Conservatore palace where they are still preserved. A sixteenth century drawing of the entire wall is reproduced by Marucchi in Bull. Com. 1893 pgs. 89-114 plates IV and V. See also De Rossi, Bull. Christ. Arch. 1871 pgs. 5-29.
[51] For late wall painting at Ostia, see Calza in Mon. Ant. 1920, 26 pgs. 405, 6. Rostowzeff, J. H. S., 39, 1919, p. 162, Ancient Decorative Wall Painting, pgs. 144-163.
[52] Rivoira, Lombardic Arch. I p. 121.

west corner of the building, we have assumed that a similar construction to that which is visible today in the north apse was adopted here: that is, piers, not bonded into the walls, supporting the ends of the entablature.

It is generally assumed that when the north apse was built and the tribunal placed in it, the place of the earlier tribunal[53] was occupied by a statue to be viewed by the spectator who entered from the narthex.

The portions of a colossal statue in the cortile of the palace of the Conservatori are now generally ascribed to a colossus of Constantine which was placed in the west apse.[54] These fragments were found in 1487[55] at the right of the stairs leading from the basilica to the Via Sacra. The head was formerly called that of Domitian and the inscription on the modern base is to that effect. Bernouilli[56] suggested that it represented Constantine on the basis of its resemblance to coin portraits of that emperor.[57] He did not press the identity further, because he considered the style too good for the fourth century and in view of the insufficient resemblance to the Constantine of the Lateran, which he believed the best portrait of the emperor. Helbig adopted this identity in the second edition of his guide to the museums.[58] The statue is fully discussed by Peterson,[59] whose opinion is accepted by Mrs. Strong.[60]

The fragments now in the palace of the Conservatori consist of the head, the lower part of the right leg, the right knee bent outward at an obtuse angle, part of the muscles of the thigh, the two feet, the right arm bent at the elbow, and the right hand. The hair had a metal wreath or diadem attached to it. The head was made of several pieces of marble. The locks of hair in front of the ears, which characterize the coin portraits of Constantine, were put on separately. A second right hand of the same size as the one found in 1487 but broken off at the second joint of the thumb is placed in the museum. This has been in the collection only since 1820 and was not found with the other fragments.[61] The two hands are finished differently. The one found near the basilica has a piece of marble left under the bent little finger, and is finished with a socket into which the lower portion of a spear was probably fitted. The position of the raised hand indicated that it held a similar object. The other hand has the marble cut away under the little finger. This hand may have been originally planned for the colossus—the measurements of both hands are the same—but it may have been rejected for some reason and left with other waste material at a place where it was found later by mere chance.

Peterson[62] points out the fact that the carriage of the head and the position of the feet, with the left heel raised, show that the figure was seated. The undraped knee points to a short tunic as part of the dress. The pose with the right hand holding a spear and the left arm bent at the elbow and outstretched is similar to that of the Zeus of Pheidias and as such Constantine appears on his coins.[63] The same author concludes that the statue was acrolithic:[64] i.e., the flesh parts only were of marble, the body of wood covered with bronze drapery. He bases this argument on the form of the dowel holes which joined the limbs to the body, visible in the section of the thigh; the fact that the use of several sections for the body, as was the case with the limbs, would have made too patched an appearance; and the disappearance of all traces of the torso, which would hardly have been the case had the statue been of stone. Moreover, the weight of a stone figure forty-two feet high would have been enormous. Wood alone would have been insufficient to support the weight of the stone head, which surely must have rested on a solid support within the body. The metal spear would have held the right hand. It is probable that the outstretched left hand, which, as the arm muscles indicate, held some object, perhaps a globe, rested on a column, as was the case of the Zeus at Olympia. No traces of any such supports are apparent.

Though Bernouilli[65] thought that the style of the head was too good for work of the fourth century, Petersen does not hesitate to assign it to this period.[66]

On the general assumption that the colossus stood originally in the west apse, the figure was drawn to scale with a pedestal in proportion to its dimensions. We found that the head of a seated figure of this size would have touched the semi-dome of the apse.

We cannot believe that anything so contrary to the laws of proportion was allowed, even in the fourth century; nor could the statue have been placed on the floor of the apse without a pedestal. The construction of the cellar of the apse does not seem to indicate that it carried any great weight. The suggestion was offered that the statue was placed not in the apse but before it in the nave. The placing of the colossus at this point would have ruined the effect of the proportions of the hall; neither are there traces of a foundation at this point. In our restoration we have placed in the apse a statue similar in pose but smaller than the colossus. (Plate III.) The latter probably stood on the Via Sacra near where it was found, though there are no visible foundations in the vicinity of the basilica. Perhaps it stood just beyond, under the present church of Santa Francesca Romana. It does not seem likely that so much of the statue would have been found together if it had been carried a great distance in the middle ages; for the size of the pieces would have made it difficult to transport many at a time. The head fell or was dragged on the left side as this part is broken more than the right.

E. P. FRANKLIN, *Fellow in Classics.*
VICTOR L. S. HAFNER, *Fellow in Architecture.*
American Academy in Rome.

(*To be continued*)

[53] Nibby, Foro Romano, says that remains of the tribunal were found within the west apse. This appears to be a misinterpretation of the remains of horrea still visible in this position.
[54] Huelsen, R. F. p. 230.
[55] Michaelis Röm. Mitt. VI 1891, Storia della Col. Capitolina, fig. 143; pgs. 1-61; Fea, Pianta del Foro Romano 1827.
[56] Röm. Ikonographie, 2, iii, pgs. 220, 221.
[57] Ibid, Münztafel VIII esp. No. 15.
[58] 1899 I p. 372 repeated ed 3. 1912 I p. 502.
[59] Atti dell'Accad. Pont. ser. II 7 (1900) pgs. 159-182. un Colosso di Costantino Magno.
[60] Roman Sculpture, p. 385.
[61] Peterson, Op. cit. p. 162.
[62] op. cit. p. 166.
[63] Maurice, Numismatique Constantinienne Vol. III, Plate III, 10, 23.
[64] op. cit. p. 168-170.
[65] loc. cit.
[66] op. cit. p. 174.

"Bunk" and "The Good Old Times"

THOSE who have read, or had the good fortune to hear, the address[1] of Mr. Charles Eidlitz, Chairman of the Board of Governors of the Electrical Board of Trade of New York, before the Building Congress of that city, will need no introduction to "Bunk." But it is doubtful, should any of them be old enough to remember back more than "the last ten or fifteen years," if they have such happy recollections as does Mr. Eidlitz of what the "good old times" were in the building industry.

To him, those "good old times" bring back wonderful and happy memories. He lays them before us vividly; and we are filled with wonder that there were builders who builded as perfectly as it was humanly possible to do, in order that they might lie down at night at peace with their consciences. Mr. Eidlitz cannot place these ideals of these old time builders too strongly before the industry of today.

With this picture in mind, one who knows only the builders of today cannot but shudder when he considers what must have been the state of mind and the principles of the ancestors of the myriad of present-day builders whose walls are torn down because the perfect bricks are all on the outside and there is no mortar behind the beautifully pointed-up joints!

The memories of one generation, to become the traditions of later ones, must be practiced and carried down through succeeding generations, and I am certain that this generation is appreciative that Mr. Eidlitz is perpetuating the fundamental principles of honesty in work and service which he learned from his father. Would that every contractor of today had been so taught! Mr. Eidlitz himself suggests that not many of them are tearing out the work which they have placed at so much trouble and expense because they have discovered that it was not so perfect as it was humanly possible to have done it, and then are building it back again, as it should have been done in the first place, at their own cost and with full recompense to those others whose work has been damaged.

The conception of the duty and obligation of the contractor to his work and to all about him advanced by Mr. Eidlitz is splendid in its lessons and its idealism, but he rather lessens its effectiveness when he makes it apparent that the present day owner does not ordinarily pay enough to permit the walls of his building to be torn down and replaced at will by the conscience-stricken contractor. Mr. Eidlitz does suggest a way in which this can be accomplished and leave everybody happy at the ending—the cost-plus method! Truly one wonders if this cost-plus idea must not have been entirely familiar in all its possibilities to the builder in the "good old times."

Speaking to the manufacturer, the general contractor, the sub-contractor, the banker and the representative of labor, all elements of the building industry of which he is a part, and strengthened by those memories of the old perfect days when there were only perfect bricks, perfect joints and perfect mortar, Mr. Eidlitz strikes boldly where he says that others have hesitated. He classifies some elements of the industry; the architect is a "pianissimo" sort of a chap; quieter and still more delicate is the contractor, and still further down is the sub-contractor, each more soft-spoken and vacillating as the scale is descended. The sub-contractor, apparently alluded to as a "poor, half-starved, irresponsible, fat-headed fish," seems to be the original "pussyfooter." What about the other elements of the industry? Labor and the banker are not classified, and the speaker is silent regarding them. Did he do a bit of "pussyfooting" after all, or did he just consider these elements of little consequence in his scheme of things?

Mr. Eidlitz declaims that he is looking for "Bunk," for something that he may "mark or stake it out and leave it exposed and naked like a September Morn." The thought is sufficiently shocking to make us all follow the speaker avidly, waiting for the exposé. He leads us on and gets us all worked up and excited, only to uncover a flea—Bunk indeed!

Finally Mr. Eidlitz gets upon familiar ground and puts forth that well-known lamentation of the low bidder which each one sets up after the bids are opened and he finds that he might just as well have had a few more thousand dollars of the owner's money. He loudly exclaims that he has made another "honest error" and committed the one unpardonable sin of a contractor. So quickly does what was intended to be a clever bid loom up as a nefarious contract!

Should not the contractor have foreseen this result and devised some method whereby this difference could be obtained from the owner? The speaker suggests that error, that unpardonable sin of the "honest mistake," which is leading the industry to ruin, can be corrected, insofar as his particular field is concerned, by getting those particular tradespeople together and that, when together, they could fix a fair price for his particular trade. I wonder where the present generation learned that—from the good old honest days, or was the "gentlemen's agreement" developed in our own times? Evidently the thought has taken hold, for the speaker refers feelingly to the Sherman Act and suggests that, when it comes to making a choice between going to Sing Sing and letting "the poor chap who made an honest mistake" ruin an entire industry thereby, there is no use going to prison!

But Mr. Eidlitz is not done with his search in Bunk; the flea is still elusive. He tells of the honest traveler who, overchanged by the ticker seller, returns his surplus to the railroad company, and so misses a train. The conscience of that ticket-buyer surely worked very slowly. Mr. Eidlitz paints a picture of the wife and children of this traveler, waiting expectantly at home for the return of this husband and father who has missed his train. You can see the homecoming of the honest buyer of tickets; the pathos of the scene is familiar, I am sure. And any of you who have tried, perhaps, however, under different circumstances, to explain a missed train,

[1] This appeared in part under the title, "The Quality and Quantity of Buncombe," in the JOURNAL for March.

can imagine with what success the honest ticket-buyer got away with his story. It is too bad that Mr. Eidlitz failed to finish his picture and paint the railroad demanding its pound of flesh from the poor short-changed ticket seller to make good his "honest mistake," in the same vivid colors with which he paints the owner who requires the contractor, who has just made one of his "honest mistakes," to put his "John Hancock" on the dotted line.

The whole argument of Mr. Eidlitz is an indictment of careless and unreliable methods of the contracting industry, of irresponsible contractors and their slip-shod methods, and he is unquestionably on solid ground when he pleads for more competency in the contracting elements of the industry, and for more honesty in workmanship. He cannot be serious when, with considerable logic, he asks why a sub-contractor or a general contractor or even an architect should try to do anything more than he is absolutely compelled to do. In the "good old times" a man felt that his work represented his honesty and ability. Mr. Eidlitz asks, "Is that the condition today?" He cannot mean to leave with us the impression that the sub-contractor, in a lesser degree the contractor and even the architect are not compelled in this generation to exercise ability and to be honest. Nor can he seriously expect that any of these elements of the building industry, to whom ability and honesty may be denied, will acquire these virtues because of his stereoscope and his "Lost Clause."

It is not possible; and so the ending of the tale is as it was in the beginning: *Bunk*.

EDWIN BERGSTROM.

London Letter

The first three months of the New Year with a Labor Government in the saddle have not been without excitement. The building trade is on the qui vive for the revival of housing on an extensive scale, architects are hoping with an anxious expectancy, and bricks have become significantly scarce. And while the government has been debating its schemes, the Trades Unions have been testing the ground with a pair of highly inconvenient strikes, which have sent up the cost of building very slightly in sympathy with an increased cost of living. It is practically certain that an extensive housing programme will be entered upon, and the Minister of Health has been negotiating with the Building Trades Unions with a view to solving the problem of shortage of skilled labor due to the steady rejection in the past of any scheme of dilution which would permit new men to be trained in any number. The unions desire guarantees for continuity of employment; they do not seem to realize that if labor were readily available, and at an economic rate, the danger of unemployment would automatically cease.

The question of materials for housing is naturally again to the front. The *Daily Mail* assures its vast public that concrete houses will be the solution, while the R.I.B.A. wisely reminds the authorities that experience has shown that so far pre-war building methods in brick and timber have not been surpassed either for quality or cost. Concrete blocks have been proved satisfactory, but as the unions insist that the laying is a bricklayer's job, one of the main claims of concrete construction is automatically nullified.

* * *

The more serious questions of the day have been happily relieved by lighter incidents. One of these is a proposal, emanating from the Society for Prevention of Cruelty to Animals, to erect a memorial in Hyde Park to the animals which perished in the service of mankind in the Great War. The idea was not without a certain beauty, but unfortunately the proposed memorial became known as the animals' cenotaph. Anxious enquirers wrote to ascertain whether, besides horses and dogs, insects and birds were also to be commemorated, and it was pointed out that as mice were used in submarine experiments they must *ipso facto* be included. Then some recalled that goldfish were used as gas detectors and suggested that the memorial be known as the "Tomb of the Unknown Goldfish."

But in spite of ridicule, the proposal is still alive.

* * *

The R.I.B.A. Academic dress proposals also help to lighten dull days. The proposal to adopt academic dress was recently quashed. It has now been revived, and an energetic body of its supporters, at a recently convened general meeting, caught the opposition napping and pushed it through. So gowns are to be worn, and tailors are tendering. The only cloud is the prospect of another meeting which is being convened with the idea of rescinding the resolution of the last meeting. The whole thing is rather a farce and lowering of the dignity of the Institute, which has some really serious work on hand just now.

* * *

One of the problems is a revived proposal for absorbing the Society of Architects and obtaining Registration through this Unification. Negotiations between the Councils of the two bodies have reached an advanced stage, but neither can be certain as to what will be the feeling of their general body of members. A certain section of the Institute, calling itself the "R.I.B.A. Defence League," has circularized the majority of the Associates, advising them, in vehement sentences, against amalgamation with the Society. This so-called Defence League is a very political coterie, and was responsible for the composition of the last Council which was so completely defeated at the recent elections. The question of amalgamation is a very important one for the profession, and it is rather disgraceful to see this rabid propaganda against proposals which have not yet been even tabled, so that fair criticism of them is manifestly impossible.

* * *

Everybody is interested in the wonderful model known as the Queen's Doll's House which is to be exhibited at the Wembley Empire Exhibition, and which will prove one of its biggest attractions. It is the extraordinary realism of this model house which attracts. Everything

in it is complete, to 1" scale, and it has been designed and decorated by the best craftsmen in England. About 1,600 people have contributed, the whole design being co-ordinated by Sir Edwin Lutyens, who planned the house.

The house is in the Wren manner, and has a frontage of about 8' 6", with a height and depth of 5' 0", and contains nearly 40 rooms and halls. Each room is completely designed and furnished down to the smallest detail, with ceilings and wall paintings executed by such men as Sir John Lavery, D. Y. Cameron, Edmond Dulac, Charles Sims, William Walcot, Gerald Moira, and a host of others equally talented. The model was built in a studio in Sir Edwin Lutyens' own house, and has had to be completely taken down for removal to Wembley.

* * *

England has fallen into line with France and the United States, and has received as a legacy from the late lamented Conservative Government a Commission for the Fine Arts.

With Lord Crawford as President, Lord Curzon, Mr. D. G. Cameron, Sir Edwin Lutyens, Thomas Mawson, and a few other good names on the list, the Commission has prestige and weight, which it will certainly need, as its powers are advisory and not executive. It will be able to make recommendations, but will in itself have no actual power of veto. The Commission has everyone's wishes for a successful and useful career, if it will not lay a too heavy hand on initiative and imagination.

Most of us in England find in the American architectural magazines a tonic to the mind and a joy to the eye; and the written articles are sometimes not without spice. But sometimes we feel disappointment at the expression of some narrow point of view which comes as a shock from a country of modern progress. In this category are the criticisms on modern work of Mr. Egerton Swartwout in the *American Architect and Architectural Review*, where he conducts an otherwise interesting Literary and Pictorial Architectural Digest. Anything modern in feeling or expression appears to be anathema to this writer. He condemns without reason and with astonishing catholicity. Work which he does not like is "nonsense." It is interesting to watch the vigorous riding of a hobby, but we expect a little logic in our architectural criticisms from the United States.

* * *

Architecture continues to make periodical appearances in literature. After Mr. Aldous Huxley's "Antic Hay," mentioned in the last "Letter," there comes a four-verse poem in the *Nation and Athenæum* by Robert Graves, describing an architectural progress through Oxford. The following verse describes the architectural dry-rot which is creeping over the outskirts of the city of dreaming spires:

So to Summertown,
By 'bus, to a row of post-war villas, neurotically built,
Standing each at different curious angles to the road;
Each with the most extravagantly individualistic shrug and tilt
Of roof, wall, porch and gutter, as though each abode—
"Rosslyn," "Sans-Souci," "Mons"—defied the sergeant-major—would not dress—
Dumbly blaspheming Banbury Road's ordered pretentiousness,
The semi-detached pairs writhing in a loveless caress.
March, 1924. "X."

Architecture and History

Within the last century, a new kind of history has come slowly into existence, a history which is not concerned to record events by themselves; rather it seeks to recapture the whole setting in which events and people had their being, and as a result the scattered stones of history are now being organized into buildings, so that one may literally re-enter the past. The idea of history as a drama, with a stage and a cast of characters and the thread of a plot running through it, does not supplant the conventional chronicle, but gives it a reason for existence; for wars, political struggles, and natural disasters are little more than the punctuation points in the story of a community's life and arts.

In building up this notion of history, nineteenth century students of architecture, like Ruskin, Viollet-le-Duc, and Burckhardt, played an important part, and in books like Faure's *History of Art*, Adams's *Mont St. Michel and Chartres*, and Mrs. Taylor's *Aspects of the Italian Renaissance*, the method is now in full swing, and the tradition firmly established.

It is unnecessary to emphasize here how, for lack of a spiritual understanding of the past, the architect has again and again attempted to reproduce forms which no longer have a legitimate reason for existence. The whole period of Gothic construction, which began with Horace Walpole's Castle on Strawberry Hill, was founded upon the complete inability of the eighteenth century architect to understand the mediæval heritage, so that even when he respected the mediæval precedent he succeeded only in caricaturing it. Down to the time of the Oxford movement in religion and the Pre-Raphaelite movement in art, Gothic architecture was associated with ghosts, dilapidation, and gloom; and its typical virtue was supposed to be a sombre disorder, which, it is true, harmonized with the dingy aspect of early industrialism.

Ruskin and Morris altered this conception, no doubt; but Ruskin was too much of an evangelical Protestant to enter fully into the spirit of mediæval life; and Morris was, on the whole, indifferent to anything but its secular manifestation in the guilds. It remained for Henry Adams, in his magnificent account of *Mont St. Michel and Chartres*,[1] to insinuate himself bravely into the very flesh and bones of the mediæval order, from the 11th to the 13th centuries. It is not merely by examining the

[1] *Mont St. Michel and Chartres*, by Henry Adams. Houghton Mifflin Co.

transition in building from the round arch to the ogive from the formidable, military virtues of early Norman work to the playfulness and exuberance of the thirteenth century, that Henry Adams makes the forms themselves intelligible. By responding to the brave notes of the "Chanson de Roland," by repeating the prayers of the monks, by arguing on dialectic with Abélard, by currying favors from the Queen of Heaven, Adams conveys the overtones of mediæval architecture—and without those overtones the cathedral itself is silent.

Who can follow Henry Adams through Chartres, from tower to nave, from nave to choir, from choir to the Lady Chapel, and thence to the windows, and still feel that here are mere forms which can be imitated or adapted without taking over the life that created them? Who could think that the stones shipped f. o. b. from any quarry anywhere would play the same part in a modern building as the stones that were dragged in solemn procession by the whole community, the quarry at Berchères-l'Evêque being five hard miles away? Who could fancy that these glorious windows could be built again without the help of the guilds, or that craftsmen could work wholeheartedly on a building in which they had no impulse to pray?

I doubt if a single "mediæval motif" would appear on a modern building if the architect had read and really assimilated *Mont St. Michel and Chartres*—unless, like Dr. Ralph Adams Cram, he had the courage to go further and seriously advocate a return to a universal and authoritative religion, to handicraft and Walled Towns. History, as it is portrayed by Henry Adams, leaves no place for the practice of archæology, either pious or profane; for the more one understands the past, the more one sees how impossible it is to recover it by any external device, except as a masquerade.

This observation remains just as pertinent when we turn to the Renaissance, for despite the assurance of Sir Reginald Blomfield and Mr. H. Van Buren Magonigle that the Renaissance is still with us, the historian has a different tale to tell. In a vivid presentation of *Aspects of the Italian Renaissance*,[2] Mrs. Rachel Annand Taylor has given us a picture that is as rich in texture as the paintings of Veronese—a book that is not merely a last word *on* the Renaissance, but also, one is almost tempted to say, the last word *of* the Renaissance. Mrs. Taylor begins at the point where Henry Adams leaves off: she depicts the Mediæval Dream, dissolving before the light of the Renaissance morning. In a hundred graphic sketches and interpretations she puts the whole scene before us, showing the complex of social and political and intellectual conditions, and discussing the personality and work of the scholars, the artists, the courtiers, and the decisive, intelligent women of the Renaissance.

The individuality and uniqueness of Renaissance art and architecture, as they lived through their first moments of history, are brought out by this survey; and at the same time, we acquire a criterion for dealing with modern manifestations of the "mode."

"It seems amazing," says Mrs. Taylor, "that these early Renaissance folk knew so well how to adore without imitation. Donatello was at Rome with Brunelleschi in 1403, and an enthusiast; yet no work of his swerves from his hybrid but original inspiration. Ghiberti writes with delight concerning certain relics, buried perhaps by 'some gentle soul' during the Christian rage of iconoclasm; but no Greek or Roman would have imagined the Baptistery gates his way. Botticelli hears of Aphrodite, but she rises anew from the pale, sad seas of his individual dream. . . . The Greeks sought after abstract beauty of form, the pure archetypal dream. But the Renaissance man had learned the passion for expression, and could not do without the precious differences—which, though they may violate some canon of rhythm, yet hold a troubling secret of more penetrative charm. Things had to be not only beautiful to the Renaissance man, but '*strangely* beautiful.'"

Without the turbulent, highly energized social life that existed in the court of Lorenzo or Nicholas V, without the sudden expansion of the spiritual horizon, without the quickened scene of discovery, without the dazzled realization that the five senses are no longer five sins—what is there left of the Renaissance inspiration for modern architecture? The Gates of Heaven have been assaulted; the terrestrial world has been explored; and even our small Lorenzos—multiplied in financial power but shrunken in stature—eat shredded wheat, do their daily dozen, and entrust their largess to pious foundations, which endow prayer-wheels of red-tape. Like a revolution, a re-birth cannot be prolonged forever. One sees plainly that a good many modern buildings, done in imitation of the Palazzo Riccardi or the Tuileries, are little more than the afterbirth of the Renaissance impulse—a mere, inevitable residue of the great act itself.

What is called Renaissance architecture today has nothing to do with the original Renaissance movement: it is merely characteristic of our dreadful facility in imitation, and it expresses the willingness of even the architect in a machine-age to accept a pattern for cheap reproduction instead of undergoing the abysmal labors of creative design. Even what is best in Renaissance architecture does not spring from our own life directly: it comes from that fragment of it whose curiosity and acquisitiveness are served by museums. If the new study of history does nothing else, it at least makes plain the difference between a living form and a death-mask. Since this history owes its original impulse, in good part, to the students of architecture, it is not too much perhaps to hope that architecture will in turn profit by its implicit lessons. Even if we are monks we can no longer build Mont St. Michel; even if we are merchant-princes we can no longer have someone create a Villa Medici for us; for the overtones are lacking, and the chief note that the old forms sound in the modern environment is servility or snobbery. Architecture, as Professor Lethaby well says, is "form in civilization," and woe to the people or country where the form has become, in the narrow sense of the word, "good form"; for the past has nothing to offer us unless the present has even more.

LEWIS MUMFORD.

[2] *Aspects of the Italian Renaissance*, by Rachel Annand Taylor. Houghton Mifflin Co.

Housing and Community Planning

CLARENCE S. STEIN, *Associate Editor*

The Pittsburgh Plan

In 1911 a City Plan Commission was created for Pittsburgh. Its authority ceased at the political boundaries of the community and its labors had hardly commenced before it became evident that city planning is concerned with geography rather than with voting districts. For the purpose of broadening the terrain, a County Planning Commission was organized in 1913 and later the Citizens' Committee on City Plan, an unofficial body, whose function was to co-ordinate the labors of the two formal commissions, came into being. It did not confine itself, however, to a passive role, but spent much time and money in the issuance of plans and pamphlets dealing with specific details of the problems. Two of these studies cover Transit and Playgrounds.

TRANSIT

Between the Monongahela and the Allegheny Rivers, just before they unite to form the Ohio, is a wedge-shaped area bounded at the open side by hills. Its extent is less than a square mile. It is the TRIANGLE. Here executive and mercantile Pittsburgh sits enthroned. Pittsburgh is growing. There are now almost 600,000 people within its political confines. Soon there will be one million. Many additional thousands dwell in the suburbs and each day a large proportion of this vast population enters and leaves the Triangle.

The Triangle needs more floor space for its adding machines. More floor space means more people. At the rush hours the streets are packed to refusal with 700 street cars, unnumbered automobiles and pedestrians. As Carlyle says in his French Revolution, "What to do?"

Clearly, the problem is one of finance and engineering. By ingenious loops, cut-offs and subways, the rails can be made available for several times 700 cars. The subways will be built to serve first the surface equipment and eventually a high speed system covering a territory of 100 square miles. In its final development, each artery will be directly connected with the Triangle, and as far as the maps now show, there will be no effective connecting rings or by-passes.

As engineering-finance it is admirable, but when presented as a "Solution of Congestion," I become a dissenter, for of all methods of increasing congestion, the Pittsburgh Transit Plan is one of the very best. It is New York over again on a somewhat smaller scale.

To be sure Pittsburgh has a zoning ordinance under which the height and bulk of buildings and incidentally the occupying population are limited, but when the new transit scheme gets well under way, an irresistible demand will arise for higher and bigger structures than allowed under the present code. The regulations will break down. It cannot be otherwise.

Working under a proper plan, zoning is beneficial and effective, but unfortunately only the most summary planning is necessary before launching an all-embracing zoning ordinance. It has become the present-day fashion. It holds things as they are—a very strong appeal to many influential interests. It is cheap; it is speedy and for a time at least, it stops the pain. But to impose a limit on floor space and then to dump on it every morning twice as many people as it is designed to carry does not make sense.

Experience teaches us that subways invariably stimulate the packing of the population and as far as I know there has been no noteworthy exception to this rule. This being so, there must be some reason why this class of public utilities cannot be built unless labelled "Relief of Congestion." Perhaps the answer can be found in the fact that more people mean higher real estate values; a timid suggestion and possibly very wide of the mark.

City transportation is generally privately operated and bonds cannot be marketed unless a profit be anticipated. The more a subway costs, the more fares it must collect. If the banker can be assured that the cars will be jammed, he will float the bonds. Subways are built not to move a present population in comfort, but to move an increased population in the same amount of discomfort that the road is advertised to alleviate.

The Pittsburgh Transit Plan promises a relief of congestion by increasing facilities and by creating new population centres. Human habitations mass themselves at cross roads and the maps show but one important meeting place, the Triangle. There is no doubt that the scheme will provide more cars and that it will stimulate suburban building, but it is no less true that decentralization is not part of the idea. The Triangle will get the business. This may be good financing but it has precious little to do with planning.

Therefore, as long as city transit is regarded as a profit-making enterprise, even though limited, the nuclei of our cities and of Pittsburgh in particular will be forced to support a steadily increasing human load.

Which, after all, may be an altogether desirable consummation and if I believed in it and if I lived in Pittsburgh, I would vote for it.

PARKS

The report on Parks deals with human welfare and is not concerned with finance. This does not imply that the open spaces are extravagant in area or in cost, but it means that the return on the investment is expressed in terms of human contentment and not in money. In planning, the point of view is everything.

In presenting the case for Transit, the Committee had to plead the cause of decentralization in order to justify a plan that is concentration itself, but as to the parks no such screen was deemed necessary. It surveyed the field and proposed parks and playgrounds in locations where they would do the maximum amount of good, suggesting the design and equipment most fitted for each particular site. It is a good plan, well thought out and most intelligently advocated.

Any city desiring the execution of its plan could not do better than to study the work of the Citizens' Committee. The technique of enlisting public opinion is most difficult and one can disagree with some of the recommendations and retain a profound admiration for the presentation.

JOHN IRWIN BRIGHT.

The Secretary's Page

24. While I realize the last Secretary's page has not at this writing appeared in print, I like to believe, or possibly I am forced to believe, that the thought of mentioning in the Secretary's page those Chapters that have sent in their minutes has brought a marvelous result. Three weeks ago all the results in this line that had accrued to the Secretary's office were reports from 9 different Chapters. Some leaven has been working. In the three weeks elapsed I have already received reports from 14 Chapters and one Society, all reported below.

BOSTON, WASHINGTON STATE and CHICAGO issue printed leaflets. UTAH sends out a nice blue printed sheet, called "Irregular Curves," and the balance of the Chapter reports are typewritten or duplicated. The ILLINOIS SOCIETY sends in the January number of its interesting *Monthly Bulletin*. The Secretary notes with interest that with the exception of the WASHINGTON STATE *Monthly Bulletin* (which carries a little local advertising) all the leaflets are without advertising. ST. LOUIS minutes arrived for the entire past year.

The GEORGIA CHAPTER report brings up a condition which the Secretary does not understand, but it shows unanimity of Chapter action and a willingness to stand together when the occasion arises. Apparently the city has attempted to apply a tax on the practice of architecture, and one firm of architects has made a test case by entering a restraining order against such action on the part of the city. As such an action might easily be expensive, the Executive Committee of the Chapter offered its financial backing to the firm in question and at a special call meeting the Chapter endorsed this act and made it a Chapter affair.

SOUTH CAROLINA holds a winter and a summer meeting: both interesting reports have just been received. They have done one thing new to the Secretary's experience which has possibilities: appointing a special committee to investigate and recommend to the Chapter the services of reliable and competent structural engineers and heating and ventilating engineers.

NEW YORK's December minutes give the news that they have decided to invite members of the NEW JERSEY, BROOKLYN and PHILADELPHIA CHAPTERS to attend their February meeting. NEBRASKA again is setting a very pretty standard. Comes to the Secretary's office their February *Bulletin*, with the annual meeting minutes, announcement of the February meeting, comments on Regional meetings as spoken of in Boston and New York, and the announcement of a Chapter Competition for the design of the *Bulletin* cover, all worth reading. Interest in the Small House Service Bureau work and the very sane way they are taking it up is most encouraging. The minutes of the annual BALTIMORE meeting also are in. The February meeting of the DAYTON CHAPTER shows active interest in civic matters. One meeting of the CONNECTICUT CHAPTER was a luncheon with members of the Architectural Faculty of the Yale School of Fine Arts.

The GEORGIA CHAPTER has endorsed the Better Homes in America Movement and has appointed a representative to work with the Atlanta Chairman, a fine move. The Secretary hopes other Chapters will follow.

Minutes of the 296th meeting of the WASHINGTON STATE CHAPTER have been received. The response from the various Chapters to the letter from the WASHINGTON, D. C., CHAPTER, asking for help in the District Registration bill is encouraging.

25. The Secretary notes with interest the circular telling of the purposes and methods of the Architectural Department of the American Baptist Home Mission Society, 23 E. 26th St., New York City, which strongly recommends the employment of architects for all church work at standard fees. This department criticises architect's plans, does preliminary sketch work, and makes a charge of one per cent, to be deducted from the architect's fee, so that there is no additional cost to the client. It is organized to run without profit. "The role of the Department is that of consulting architect." The Secretary regrets that the profession has allowed such a condition to arise.

26. Why is it that such things as this, such things as mentioned in the article on Lutheran Church Art, such a large misunderstanding of the profession in general building, can be happening throughout the United States? I am afraid that the profession itself is to blame to a great extent, and that some study and some real constructive work on the part of the profession is needed. Hind sight is always better than fore sight, as is evidenced by the following letter which opens the way to almost any sort of argument you may desire.

"AMERICAN INSTITUTE OF ARCHITECTS.

Gentlemen:

I have had a house built for me on which the builder guaranteed the work for two years. I have paid for the house but still owe him for a garage recently built.

The woodwork around the doors has developed very apparent cracks where the joints come 2/16, 3/16 or even 4/16 inches wide, probably due to shrinkage. Also the same cracks are quite in evidence around the windows. There is also a *good deal* of shrinkage in the moulding around the edge of the floors.

He claims he should not have to pay to make this work good, and that I should do so if it is done. Will you please advise me which is right. I have refused to pay for the garage in full until he does the work referred to. I will appreciate very much your reply. He has suggested that I ask your opinion. I would add that I did not employ an architect (foolishly).

The house was finished 10 months ago."

27. The Secretary was present at the first Conference of the Small House Service Bureau in Minneapolis 11 and 12 Feb. A Directors' meeting of the National Body was held, officers for the ensuing year elected, and the program for the year's work laid out, following the two days' hard work of the conference which was represented by delegates from five Divisional Bureaus, and a representative from the Southwestern Bureau, in process of formation at St. Louis. At the dinner on 11 Feb. the Director of the National Bureau gave a summary of the

promotional work for the Bureau and what it had accomplished, emphasizing that the Bureau was placing the architect before the public steadily, advancing the work of the Institute and the architect almost daily. Each week, in some 75 papers, the Bureau's Clinic blankets the country, and the names of the Institute, the Department of Commerce, and the Bureau appear in each piece of copy.

Pre-Convention Notes

The Executive Committee of the Institute has just had its meeting in New Orleans, happily combined with the conference of the Seventh Regional District, full account of which is given by a special reporter of the JOURNAL.

The Secretary feels that the two sessions of the Seventh Regional Conference, at which the officers were so fortunate as to be present, confirmed his belief that Charles A. Favrot, the Director of the Seventh Regional District and the originator and father of the Regional District idea, really did something when he conceived the whole plan. The thoroughly informal discussion, comments and the camaraderie developed could not but be of value. Incidentally the Secretary believes that NEW ORLEANS has made good on its past reputation of hospitality and its treatment of visitors. Not only was the conference able to confer, but the Executive Committee was able to execute and at the same time get a taste of what Mardi-Gras in New Orleans is in this age.

Later some of the officers went to Dallas and attended a meeting at which all the local members of the Institute were present. Dallas showed the officers that its slogan of "It's in Dallas," could be lived up to. Then the Secretary's travels took him to Washington, where he was invited to the monthly meeting of the WASHINGTON, D. C., CHAPTER, and the delightful exhibition in the Art Centre rooms.

Judging from a conference at which six Chapters were represented, from the meetings of the Dallas architects of the WASHINGTON, D. C., CHAPTER, there are certain very important questions occupying the interests of the architects at large. These are the questions of competitions, regular and irregular; and of the Questionnaire on Architectural Relations. For the latter, the Secretary would like to say that there is evidently a misunderstanding in a large portion of the Institute as to why the Questionnaire was sent to all of the members. May the Secretary answer this by saying that it was sent to them to answer? It is the duty of every Institute member who feels that his membership is worth anything at all to answer this Questionnaire, regardless of whether he fully understands the questions as given, or whether he approves of them or not. In this way only can the Committee work out for the benefit of the profession a cross-section of its opinion throughout the United States on things most vital to its future.

And this brings the Secretary directly to the matter of the coming Fifty-seventh Convention at Washington, to be held on 21, 22 and 23 May. It will be notable in that the program is simple and elastic, and will open the way for intensive and valuable discussion of the questions of the day. The Committees of the Intitute, during the past year, have done much work and their reports will call for most careful consideration by every member of the Institute, and it is to be hoped that delegates from every Chapter of the Institute will be present. He wishes also to say that any Chapter that is not represented is forfeiting an opportunity to take part in discussions that will have a bearing upon the entire future of the profession.

The Convention will bring no special expense upon the delegates for a banquet. This year the banquet will be omitted. Instead an excellent program for the last afternoon is being arranged. Some particularly interesting things in Washington will be shown to the delegates and members at the Convention under unusual auspices. The Secretary of Commerce has issued an invitation to the Institute to visit the Bureau of Standards, and see all the work being done under the Department of Commerce along lines pertaining to building and construction. The entire Bureau of Standards will be thrown open to the visiting members, and the staff of the Department of Commerce and the Bureau will be our hosts. May the Secretary add that his acquaintance with a small part of what the Bureau of Standards is doing makes him feel that this is an opportunity not to be missed?

A brief summary of the Convention Program might be given as follows:

Opened by the President, of course. Followed by the Board's Report which will set the general program and open the way for discussion of all of those matters brought up in the Institute during the past year.

Do not forget that there are amendments to the By-Laws being offered which may affect each of you directly and your action is necessary at the Convention. Certain interesting subjects will be discussed by speakers of note and the Convention in general will be a get-together, get-busy, get-action Convention.

As a last word to each member in the Institute, to each officer of each Chapter, see to it without fail that every Chapter, including the three Texas Chapters just formed out of the old TEXAS CHAPTER, has as many of its delegates as possible at the Convention so that he can carry the proxy if necessary for his other delegates and that every Chapter will have its say in what we are going to do. The Executive Secretary tells me that the membership as a whole, and Chapter officers in particular, will receive various notices and letters which will give them complete and definite information concerning the details of the Convention program, hotel headquarters, equalization of delegates' expenses, and similar matters. We will try to get the Convention reports of standing and special committees into the hands of each Chapter Secretary by 25 April. It is suggested that every Chapter now arrange for a meeting in early May to discuss these reports and instruct delegates.

FOR President, Milton B. Medary, Jr., of Philadelphia, has been nominated by members of the following chapters:

BOSTON: H. H. Kendall, Harry J. Carlson, R. Clipston Sturgis, Chas. A. Coolidge, Robt. P. Bellows, Arthur W. Rice, J. Lovell Little, Henry F. Bigelow, William Emerson, R. A. Cram, H. W. Gardner, Wm. H. Lawrence, John Hutchins Cady, F. Ellis Jackson.

PHILADELPHIA: Wm. J. H. Hough, Howell L. Shay, H. E.

Hendrickson, G. Edwin Brumbaugh, Wilson Eyre, Percy Ash, John F. Harbeson, Wm. D. Hewitt, Albert Kelsey, Arthur H. Brockie.

SOUTHERN PENNSYLVANIA: J. A. Dempwolf, Reinhardt Dempwolf, John B. Hamme, G. Frank Witman, Edw. Leber, Geo. F. Gemmill, Robt. A. Stair, W. B. Billmeyer, F. G. Dempwolf, C. Emlen Urban.

VIRGINIA: Frank C. Baldwin, Philip N. Stern, Chas. J. Calrow, Finley F. Ferguson, John K. Peebles, R. Maury Browne, Benj. F. Mitchell, Marcellus E. Wright, Merrill C. Lee, Wm. C. West, A. G. Lambert.

WASHINGTON, D. C.: Waddy B. Wood, T. J. D. Fuller, Arthur B. Heaton.

For President, D. Everett Waid, of New York City, has been nominated by members of the following Chapters:

KANSAS: Goldwin Goldsmith, Chas. W. Shaver, Ralph E. Scamell, A. R. Mann, H. G. Overend, Lorentz Schmidt, Harold T. English, W. E. Glover.

SOUTHERN CALIFORNIA: Myron Hunt, H. M. Patterson, Elmer Grey, J. E. Stanton, Geo. J. Adams, Pierpont Davis, Harwood Hewitt, H. C. Chambers, Sumner M. Spaulding, David J. Witmer, Fitch H. Haskell, Leffler B. Miller, F. R. Wyckoff, Chas. R. Johnson, David C. Allison, A. M. Edelman, Gordon B. Kaufman, S. R. Burns, Sumner P. Hunt, Edgar H. Cline, Reginald D. Johnson, Paul O. Davis, Geo. Marko, E. L. Taylor, Coy C. Mitchell, C. K. Aldrich, F. W. Walker, J. E. Allison, Henry F. Withey, Julian T. Zeller, Harold O. Sexsmith, G. F. Ashley, Albert C. Martin, A. C. Zimmerman, W. M. Somervell, A. F. Resenheim.

These nominations supplement those published in the JOURNAL for March.

The Seventh Regional District Conference

The first regional conference of delegates from Chapters in Texas, Mississippi, Arkansas, Tennessee, Alabama, Georgia, Florida and Kentucky was called to order on the two days following the most brilliant and colorful Carnival ever held in New Orleans. Even the most prejudiced of old-timers admitted that Mardi-Gras this year surpassed anything previously known. The conference was opportunely timed to follow the regular semi-annual meeting of the executive committee of the Institute in New Orleans on 2 and 3 March, the culminating days of the Carnival season. And it is worthy of record that in spite of all the intoxicating revelries with which they were surrounded, steadfastly putting aside all solicitations to be frivolous, the honorable board of directors of the Institute pursued its deliberations to a finish with Spartan fortitude and determination.

With the exception of SOUTH GEORGIA and FLORIDA all Chapters in the district were represented at the conference, and at adjournment it was the enthusiastic opinion of all that the meeting had been an undeniable success, that following appointment of the new regional director plans should be laid to insure larger attendance at the next meeting and that a fixed date should be set aside for it.

The most significant impression gained from the conference was the deep interest manifested by all delegates in the regional idea itself. While the effects resulting from consolidating the chapters into geographical groups cannot now be foreseen it was evident at this meeting that those present felt assured that new and wider opportunities will be presented for service and the consideration of problems toward the solution of which progress has up to now been slow and uncertain.

The last hour of the business session was given over to a discussion of the questionnaire of the Architectural Relations Committee. Only the first inquiry was attacked but in searching for the true interpretation of this clause alone so many related problems were brought to light that if in replying to this document in full architects tell all they know about prevalent methods of financing and executing building projects, it is evident that this committee will have performed a service of incalculable value to the profession. Yet the busy architect will probably be inclined to pigeonhole this thought-provoking document. He will want to write a full and carefully considered reply to each proposition in it. If he is an optimistic opportunist he will resolve to do this on the first idle day that turns up. The conscientious man will sit down to his task with the intention of performing it thoroughly and to the best of his knowledge and belief, but before writing a line he will scratch his head and will start thinking on this point—What is an architect? What has he been? What is he now? and, What is he coming to be?

The present regional director, Mr. Favrot, very wisely refrained from bringing before the meeting any prearranged programme of questions for debate, leaving it to the delegates themselves to introduce such problems as they desired to discuss. As he remarked, "The chief value of these meetings will be to enable the different chapters to get together in an informal way, to know each other better and to help toward the solution of each other's problems"—problems which all architects must face.

Among the topics discussed was competitions. It was the general opinion that competitions are undesirable and a most indirect and wasteful method of selecting an architect; that architects, when question of competition arises, should try to show clients that a competition is inadvisable and urge against it. It developed that competitions are seldom resorted to in Arkansas and therefore do not assume the proportions of a problem. A law in Tennessee requires selection of the architect for all public work by competition, which naturally works badly in unimportant projects, and the law will doubtless be modified. In Alabama the architects suffer some unintentional competition among themselves in respect to fees, and it would appear desirable that an under standing be arrived at on this question. The chief concern of TENNESSEE is to get into closer touch with the national organization. GEORGIA would like to see the general adoption of uniform registration laws by all the States. Touching on this problem Mr. Waid and Mr. Brown of the Executive Committee made interesting and informing talks. Mr. Faville led the discussion on the Architectural Relations Committee's questionnaire and awakened so much interest in this topic that it is to be regretted that it was not introduced earlier in the session.

The programme of events arranged by the LOUISIANA CHAPTER set aside the two forenoons for business. The rest of the time was devoted to entertainment. Walks through "Frenchtown," a visit to the Newcomb Pottery and to the Tulane School of Architecture, an afternoon boat trip on beautiful Lake Pontchartrain, followed by a Creole dinner on the Jahncke houseboat, "Aunt Dinah" (at which it was proposed to make the chef an honorary member of the Institute), a luncheon in the courtyard of the Paul Morphy house, and an inspection of the port and harbor of New Orleans, all served to give a pleasurable seasoning to the occasion.

The delegates to the conference felt themselves greatly favored in having present at the sessions the entire membership of the Executive Committee of the Institute.

N. C. C.

Architectural Relations

The Committee's Executive Committee so far has held two meetings. Its members have kept in frequent communication with each other, and, practically speaking, everything has been done in conference between them.

It was obvious at the first meeting that distance, time and expense would make it impracticable to hold even one meeting of the whole Committee, and that activity of the Executive Committee must be such as the whole Committee might authorize, the continuance and extension of such authority being always contingent upon the confidence of the Committee being retained.

Pursuing this course, and feeling that all available data should be obtained, the Committee was asked for authority to prepare and circulate a preliminary Questionnaire. This was granted, and at a meeting of the Executive Committee, a letter and a form of Questionnaire to Institute members was prepared. These went to all members on 29 January, and the questions were:

1. What should be the attitude of architects to speculative building and speculative builders?
2. What should be the attitude of architects to so-called group practice, or, as it has been called, "hunting in packs"?
3. Is it right for architects to do business on the reputation of the dead or retired, especially when they lack the inspiration and touch of the vanished hand, and need restraint, as by the voice that is stilled; and what should be the attitude of architects to this business method?
4. Should architects practice on a strictly professional basis, or should they be unprofessional and yield to the embraces of the commercial elements of the building business?
5. Should the Institute base its membership requirements on notable achievement and so become a select society; or should it make character and reasonable competence its standards and become an organization having a majority voice in the profession, and truly representative of it?
6. What should be the attitude of the Institute toward smaller and more local architectural and related and allied organizations?

The responses to this questionnaire now number nearly seven hundred and come from every Chapter, including the Chapter at Large. They range in length from "yes," "no," or other short comment interlined on the questionnaire itself, to many five or more page letters. Their points of view vary over nearly the whole range of possibility, and they contain many valuable suggestions.

These responses, aggregating 400,000 words or more, divided in groups, are now passing from member to member of the Executive Committee preparatory to making the final report.

With this letter and Questionnaire there also went to the Committee members a letter asking whether the Committee would authorize the preparation and circulation of other Questionnaires, and the preparation and submission of the Committee Report, based on the data received in response to the Questionnaires and all light upon the Committee's subjects. This authority has been granted.

To encourage an increased interest and response, a postal was mailed each member as a reminder and a letter to each Committee member, telling him the state of the returns and the standing of his Chapter as to number of responses in relation to number of members. A letter was later mailed to each Chapter Secretary asking that his Chapter devote a portion of a meeting to discussion of the Committee's subjects, and that further individual responses be submitted, leaving the Chapter's formal response as a Chapter to follow its receipt of the Committee Report from the Octagon; and again each Committee member from the Chapter whose proportion of response to members was below the average was notified of the standing of these Chapters. At that time there were 10 Chapters whose percentages were above 37½%, three being above 50%. The average for the whole Institute is just below 25%.

Illuminating responses as to each one of the six items have come from members of small and large practice and from all parts of the country. Breadth of view is the evident habit of many, regardless of practice, in cities or sparsely settled country, the professional problems under consideration being, it seems, of interest to all.

It is hoped that each Committee member will find time to give the Report very careful consideration when it reaches him for action and response, so that as presented to the Convention it may fully represent the Committee view. It is hoped that each Chapter will make its member on the Committee a delegate to the Convention and that he may be able to attend a Committee meeting to be called in Washington the day before the Convention opens.

Industrial Relations

A complete report of the work for the year of the Committee on Industrial Relations is being prepared for submission to the coming Convention. The latest news of the Committee's activities concerns the organization of a Congress of the Building Industry in Denver, as a result of the further efforts of Mr. D. K. Boyd of the Committee. The report of the month is therefore omitted. The Chairman of the Committee has, however, prepared for the JOURNAL a review of Mr. Postgate's book on the Building Trades Unions in England under the title

Would You Join a Union?

If you were a carpenter or a mason would you be a member of a Trades Union? If you hate the very men-

tion of Unionism you will not be interested in reading what follows. On the other hand, if you have a sneaking notion that you would probably join your fellow workers in some sort of a crafts-union if you were a workman, then this comment on a new English book may interest you.

To begin with, here is a book[1] on a subject as apparently material as the history of the formation of Building Trades Unions in England, and it is a beautifully made book. It is good to look at, well put together and light, despite its almost 500 pages. Indeed, an American book with one-third the number of pages would be heavier. As for the typography, it is a delight to the eye.

The presentation of the subject itself shows an amount of study and investigation on the part of the author that is worthy of all praise. The idea of producing a history of the building trades in England appears to have originated with the Amalgamated Union of Building Trades Workers and eventually the undertaking was put through by the National Federation of Building Trades Operatives. The author, R. W. Postgate, says in his introduction:

"* * * in many ways the building trades have been typical of the British working class as a whole. It is true there is no 'women's labor question' in the building industry but nearly every other problem that has troubled the British worker has also arisen in the building trades. The operative builders were once the vanguard of revolution, the strongest section of the militant unionists ninety years ago. They have been also the most conservative section, fighting for the dominance of the Liberal Party and led by an Under Secretary of State. Craft antagonisms have been let develop to their fullest extent, and have been fought by an industrial unionist movement of the most uncompromising kind. The experiments in self-employment, connected with the Guild, and in constitutionalism, connected with the 'Parliament,' are also best studied in this industry."

The subject of Union organization is treated from the beginnings of early building; mediæval organizations; Free Masons, the first trade clubs, the period of Robert Owen and the development of the early 19th Century guild movement down to and through the effect of the great war on building trade workers, the "Building Parliament," the subsequent Building Guilds and the more recent slump in that venture. These are all considered in the most interesting fashion. The facts are recorded, but recorded in a fashion that makes them most suggestive particularly for an American. The repressions, the combinations of employers to use the law to suppress even justified strikes and the efforts to attack the very existence of the Unions, which have filled our own newspapers in the last five or ten years, are found in English history as long ago as 1830 and 1835. At that time an attempt was made to crush the building trades unions by the enforcement of certain "conspiracy" acts intended to prevent any kind of a combination in the building trades; but only enforced against the workers and never against the employers. Later on we have as late as 1866 the courts refusing to convict a treasurer of a Union for stealing money from the Union because his stealing was done from an association which the law considered to be in restraint of trade and hence not to be protected! To an American it would seem as if we were only now going through the same process that England faced 50 or 75 years ago. We seem to have learned little from that earlier experience.

All of this sounds terribly serious but in reality Mr. Postgate's book is frequently most entertaining. We find, for instance, that the officers of the earlier Unions were paid in ale and beer for their services. Indeed we are shown reproductions of the account books of some of the Unions in which aside from an occasional quire of paper the principal expenses seem to be for drinks, as for instance, in the case of Preston Joiners whose monthly account book of 1807 shows 2 shillings 2 pence for paper and books and 10 shillings 8 pence for ale and other entertainment.

It is hoped that this brief review will help to recommend this book to those architects and builders who recognize that the spirit which prompted the building craftsmen of England more than a century ago to form organizations for their own protection against unjust and rapacious employers is only once removed from the spirit that moves us today to join others of our professions in order to better the standards or improve the quality of the service we render. In the beginning these craftsmen had to fight harder and with more crude weapons for they were fighting against starvation. But under it all, in the worst of the battles, we sense that they were also fighting as we are today to preserve the quality of a precious craftsmanship.

ROBERT D. KOHN, *Chairman.*

[1] *The Builders' History*, by R. W. Postgate. Published for the National Federation of Building Trade Operatives. Labour Publishing Company, Ltd., London.

Public Information

CHICAGO: The *Sunday Herald and Examiner* printed on 10 Feb. a discussion of the development of the steel skeleton as applied to high buildings; on 17 Feb. an illustrated discussion of the new capitol at Lincoln, Neb., designed by Bertram Grosvenor Goodhue. The press is provided with an article each Sunday. The Chapter sends in an excerpt from the Illinois Society of Architects *Monthly Bulletin* criticizing the material supplied by the Institute. The author of this criticism says: "While they will not appeal to all of us alike, it is the effect on the great majority that concerns us." We would point out that we have had enthusiastic response from Chapters everywhere, and these articles have attracted the attention of the public nationally. The fact that leading papers of the United States have published the articles free, although holding that they were of a propagandist nature, is a clear exposition of the opinion of men who gauge what the public considers good reading matter.

ERIE: Has used the suggestion that the articles on Fire Prevention of the NEW YORK CHAPTER contain valuable suggestions for the householder, and they will be published in the local papers. They are also taking up the matter of architectural exhibits.

INDIANA: Is working on an Advisory Committee of the State Building Code Commission. The Indiana Society

and the Indianapolis Association collaborated in an exhibition, held during February at the John Herron Art Institute in Indianapolis. They feel that an exhibition of this kind is the best type of advertising and offers a fruitful means of reaching the public. Some Chapter members are assisting in the work of the Architects' Small House Service Bureau, which is sponsoring a competition for a bungalow, to be exhibited in April.

MINNESOTA: Is preparing a press campaign, has given a wide distribution of "The Functions of the Architect," and is communicating with the WASHINGTON CHAPTER, with a view to using some of its published matter.

NEW YORK: Urges all other Chapters which can use them to apply to Miss Leila Mechlin, Secretary, American Federation of Arts, The Octagon, Washington, D. C., for the two exhibits of architectural work turned over to the Federation as traveling exhibits on tour through the country. These exhibits are of two kinds: one with a predominance of domestic work and the other with a predominance of smaller public, business and institutional buildings. Both show some of the best work done in and about New York during the past few years.

PITTSBURGH: Has been helping in the February exhibition of the Pittsburgh Architectural Club. The show aroused great interest and was well attended. The Chapter joined with the Pittsburgh Architectural Club and gave a Beaux Arts Ball on 15 February, another manner of keeping the public interested in architecture. The Chapter has joined with the Architectural Club and is backing the reissue of the Pittsburgh *Charette,* an activity which might well be imitated. Such local organs would do an immense amount of good in enlightenment.

ST. PAUL: Has published news in the papers about the activities of the Chapter and its study of Rice Park, between the Post Office and the Public Library. Each member is studying it separately and the best of each design will be incorporated in a final scheme and taken up with the city officials. The Chapter is also running the NEW YORK Fire Prevention series.

SAN FRANCISCO: In collaboration with the Bohemian Club is sponsoring an April exhibition in Architecture and the Allied Arts. Members of the San Francisco Architectural Club are working on display posters for the exhibit. The Chapter has offered cash prizes.

UTAH: Held a February exhibition in conjunction with a traveling exhibition started by the SOUTHERN CALIFORNIA CHAPTER under the supervision of Edwin Bergstrom.

WASHINGTON, D. C.: Is continuing its astonishingly efficient work in the weekly newspaper section, furnishing an article on architecture, a picture of a good house, an article on decoration, and, as Mr. Cunningham puts it, "a photograph of one of the handsome village architects." Their work is syndicated in 20 to 25 other papers throughout the country. Mr. Cunningham has asked all Chapter Secretaries to send in designs of houses from their sections, to make the articles more national in character. We urge each Chapter Chairman or Secretary to cooperate with WASHINGTON in supplying material from his home town.

Expert advice obtained from the Public Information Committee, after careful study of the subject, leads to the conclusion that paid newspaper advertising is not as effective as press items prepared so as to induce the papers to use them as reading matter. Furthermore, paid advertising tends to create the impression among the newspaper advertising managers that a Chapter or the Institute is fair prey, and if this impression once takes hold they obstruct in every possible way the free publication of matter of architectural interest in order to increase their advertising revenue. Therefore, the advisors of the Public Information Committee conclude that paid advertising is not the most advantageous channel for publicity. If a Chapter has sufficient funds, a good press agent would undoubtedly be of the greatest help to the local Committee Chairman. His cost is not large in comparison with results and the experience of some Chapters shows it is well within the limits of the Chapter budget.

JOHN V. VAN PELT, *Chairman.*
126 East 59th St., New York City.

The Development of Washington

Supplementing the report of the committee under the chairmanship of Mr. Horace Peaslee, a part of the Washington Committee of One Hundred, to whose activities we have already made reference in these columns, we append a résumé of the reports of other committees of this body:

Forest and Park Reserves [1]

The plan provided by the marvelous foresight of Washington, Jefferson and L'Enfant embraced only about one-sixth of the present area, bounded by the Potomac and Anacostia rivers and what is now Florida Avenue. It reserved at intersections of avenues and streets a number of square, circular and triangular spaces so conspicuously located in the central portions of the old city that one might deem the Capital well provided with parks.

No park in this plan except the Mall is large enough for athletic fields or recreation purposes, now essential features of a park system. Gradual reclamation of marshes of the Potomac and Anacostia rivers will provide for those who can reach them, but many densely populated stretches of the old city are wholly without playgrounds. Due to excessive cost of improved land and the necessity and opportunities for park extension in the outlying sections it is merely recommended that additional areas for playgrounds be acquired in sections not now supplied, even where buildings must be sacrificed, and that historic Pennsylvania Avenue be given a dignity becoming the capital; that the property on its south side not already in government ownership, from the Treasury to the Botanic Gardens and on the north from 7th Street to the Capitol, be acquired, the unsightly buildings removed, and land not required for government buildings improved by carefully designed park development.

[1] Charles F. Consaul, *chairman;* Stephen Child, Archibald Hopkins, Miss Fannie J. Kibbey, C. F. R. Ogilby, Henry K. Bush-Brown, F. F. Gillen, Arthur C. Moses, Robert C. Howard, Dr. Robt. Scott Lamb, John H. Small, 3rd, Charles C. Glover, Jr., Miss Blanche C. Howlett, F. H. Newell, Ovid M. Butler, Robt. Sterling Yard.

The L'Enfant plan (1791) provided for almost one hundred years' growth. Since 1890 the city has overleaped the old limits and is growing even more rapidly. The population is now nearly 500,000. Government activities are spreading far outside the old boundary.

The lands acquired for park extension during the history of the city total 2,058 acres, at a cost of $3,589,998.[3]

The Park Commission of 1901—Daniel H. Burnham, Frederick Law Olmsted, Jr., Charles F. McKim and Augustus Saint-Gaudens — recommended in their final report the acquisition of 53 additional tracts within the District for the park system. *Only six have been acquired;* many of the most beautiful and important have *been destroyed.* Several are *in process of destruction.*

Steps urgently needed for park reservations inside the District, all included in the 1901 extension plan, are:

1. Establishing a Fort Boulevard following the hills encircling the city and connecting the Civil War forts. Many of these are still well preserved, with long lines of breastworks still untouched.

2. Widening Piney Branch Parkway from Rock Creek to 16th Street, to preserve the forest to the hill tops, embracing and preserving the Indian quarry.

3. Extending Piney Branch Parkway under and northeast from Tiger Bridge, else the bridge will shortly be rendered useless by complete filling of the east side of the arch, compelling a grade crossing of the heavy traffic of 16th Street.

4. Acquiring Klingle Ford Valley, a natural west entrance to the park.

5. Acquiring the beautiful Patterson Tract of hardwood forest one and one-quarter miles from the Capitol Building, ninety-five feet above it, overlooking the city, rivers and hills beyond.

6. Transforming Anacostia River marshes above Bennings Bridge into a water park and the adjacent Mr. Hamilton into a national arboretum.

7. Acquiring the forest-covered valleys and springs tributary to Rock Creek, to protect it from pollution and preserve the flow of water, already reduced one-half.

8. Acquiring tracts in the outskirts at proper intervals

For proper extension, the park system should acquire cost increased.

These proposals are modest compared with the reservations of other American cities.

For proper extension, the park system should acquire, with co-operation of the governments of Maryland and Virginia:

1. Rock Creek Valley northward from District line practically to its sources, with its feeders and branches, certainly so far as covered with forest.

2. Both banks of the Potomac, Washington to Great Falls, to preserve the forests, the very remarkable natural scenery, and stop defacement by quarry operations, this not to interfere with future developments for water supply and power plant.

3. Development of park boulevards down the Potomac, on the Virginia side to Mt. Vernon, on the Maryland side to Fort Washington, along the bluffs overlooking the river.

4. At least portions of the beautiful Sligo Valley just beyond Takoma.

5. The forest areas just outside the District, near north end of 16th Street, with provision for parkways centering at that point as suggested by James L. Greenleaf, Landscape Architect of the Commission of Fine Arts.

6. Co-operation with Maryland and Baltimore City for two park boulevards to Baltimore, one along Rock Creek Valley to its head waters east of Rockville, thence northeastward, the other from the north terminus of 16th Street, utilizing the forested valleys and tributaries of the Northwest Branch and Paint Branch of the Anacostia River, the Big Patuxent, Little Patuxent, and Middle Patuxent, and the Patapsco Forest Reserve already established.

7. Acquiring several Civil War forts occupying Virginia Heights on the Potomac, overlooking the city and the circle of hills beyond.

8. Development of park boulevards from the Virginia terminus of the proposed Memorial Bridge, one directly to Arlington Cemetery, one up the Potomac, connecting with the Lee Highway and the projected park boulevard to Great Falls, one down the river connecting with the projected riverside boulevard to Mt. Vernon.

There is no existing law providing for extension of the park system; and a bill passed by Congress must authorize acquisition of each particular tract.

During the past fifteen years, many of the outskirts, covered with splendid forest oaks and a variety of other hardwood of inestimable value for parks, have been devastated by axe and steam shovel. In several instances builders have stopped operations to allow further appeal to Congress to acquire the property, and have offered the land at cost. It was impossible to secure action before adjournment; the great oaks and beeches and maples and poplars were slashed down—the parks were lost.

The Committee on Parks and Reservations of the Board of Trade with other local civic organizations, the Commission of Fine Arts, officials of the District, Chief of Engineers, U. S. Army, and Officer in Charge of Public Buildings and Grounds, has prepared a bill to provide permanent, continuous and systematic development of the park, parkway and playground system.

With slight amendments it is adopted and recommended.

The bill (S. 112, H.R. 49) establishes a Commission, including the Secretary of the Treasury; Secretary of War, under whom the Chief of Engineers and the officer in charge of Public Buildings and Grounds have for many years had general charge of the existing parks; Chairmen of the Committees of Public Buildings and Grounds of the Senate and House; and the Engineer Commissioner of the District of Columbia, representing the people who will pay a large part of the cost.

No additional compensation is paid members, all salaried officers. The officer in charge of Public Buildings and Grounds, who is made the executive officer, has now an operating clerical and technical force. Administration expense will be negligible.

The bill authorizes a *regular annual* appropriation, not exceeding one cent for each inhabitant of the United States by the last decennial census; at a maximum, about $1,000,000 per year.

Three-fourths of this shall be paid out of the revenues of the District and the general Treasury funds in the same proportion as other District expenses. Estimating the present annual appropriations for the District at $25,000,000, this provides that practically 3 per cent shall be devoted to extension of the park system, surely not unreasonable. Of this $750,000 per year, $450,000, under the present arrangement for division of the cost, would be paid by taxation in the District.

The remaining $250,000 of the total would be used to acquire lands outside the District and would be entirely paid from the general Treasury funds. The total annual charge on the *Federal funds* therefore would be but $550,000, a trifle over one-half of one per cent for each inhabitant of the United States.

The Committee urges united effort to secure the prompt enactment of this Park Commission Bill. When it becomes law the amount appropriated by Congress each year will determine how rapidly progress can be made.

[3] Other cities, notably Chicago, San Francisco, New York, Cleveland, Boston and Philadelphia, have provided far more completely in this respect than has Washington, which stands lowest in value of park properties of all cities over 300,000. The average value in these other 18 cities was about $22,000,000, while the park property of the National Capital was valued at $5,168,477.

School Sites and Playgrounds[2]

A unified policy on school sites and playgrounds for municipal and school use is timely because of the extensive park development in prospect and the long postponed school construction, involving acquirement of a number of new sites during the next five years.

Thousands of pupils are denied school facilities for half each day; others must work in wholly unsuitable surroundings.

The Board of Education recommends action toward abolishing stop-gaps such as part time, double shifts, oversize classes, portable and rented school buildings and condemned structures; and provision for assembly halls and gymnasiums in all elementary schools of sixteen rooms or more; purchase of sites in advance to insure securing land to provide not only for extending a building but also suitable play space; and the erection of schoolhouse accommodations as needs are apparent and before real congestion exists.

A survey (1916 to 1921) indicates that the children of Washington have suffered because of an entirely inadequate provision of proper playground activities, probably one element in the high delinquency rate among the children of the District. Recommendations made at the end of the report present, it is believed, a very conservative outline of what should be undertaken at once if the children are to have opportunities at all comparable with those in progressive communities throughout the country.

Much of the new population is in sections where present school and playground facilities are totally inadequate for future needs. Block after block of solid rows of houses leave practically no play space. If no steps are taken, a very few years will see the same deplorable state as in the older parts where no sites are available and where school streets must be used for play areas. This condition must be forestalled. At present only 121 of the 154 District schools have playground facilities, and but 85 provide 30 square feet of space per child, generally conceded the minimum for playground purposes.

This school and playground plan contemplates reorganizing of the elementary schools into two groups, one of centralized 7th and 8th grades, and one of decentralized lower grades as at present.

Playgrounds of at least three different types are demanded. For the smaller children of kindergarten age and younger, to whom school playgrounds are not always accessible nor suitable, such small spaces as can be secured should be provided. Many such, now used though unsupervised, can be equipped at slight expense.

Primary schools offer the most widely distributed and satisfactory playground sites for smaller children up to about 12 years, and with removal of the 7th and 8th grades from existing elementary schools, a uniform playground for children up to 12 should be adopted for every such school. This program would give a reasonably uniform distribution of playground facilities throughout the District and bring them within reach of every home. In older districts, where schools have inadequate playground space, existing and proposed municipal playgrounds for smaller children will answer the same purpose.

For children of 12 to 15 such as will attend the proposed centralized intermediate schools, larger playgrounds are demanded, with adequate space for field sports.

These school sports grounds can be administered as part of the school curriculum, and although not restricted to school children would naturally be supervised by school athletic directors. A lesser number of these fields, but larger and preferably with grandstands, should be provided for the high schools for contests, drills and exercise. Future high school sites should contain adequate space for these long needed facilities. Similar playground facilities are now provided for adults and persons not connected with schools.

Sites for adult facilities may well be concentrated in three or four locations where space is available and convenient. At present there is adequate space in some parks for golf links, tennis courts, baseball diamonds and other sports which require large acreage—and it is hoped that they may be extended as recommended by the sub-committee on parks to meet the needs of the city as it grows. The necessity is well recognized. The recommendations are:

First—Speedy acquisition of school sites, with ample playground space sufficient to provide school accommodations for present and near future needs, and that in planning portions of the District not yet built up, school sites with ample playground space be acquired in advance, thus securing the most suitable sites cheaply.

Second—That for children below school age, additional play spaces be set aside wherever park space is available, and that all such play spaces be equipped with sand boxes, slides and swings.

Third—That for children less than 12 appropriations be made promptly to acquire playgrounds for the 31 primary schools now lacking playgrounds.

Fourth—That for children from 12 to 18 provision be made for ample sports fields in connection with all centralized intermediate and high schools.

Fifth—That appropriations be made for municipal playgrounds and sports fields for children in all sections where not provided by the schools.

Sixth—That in location and selection of land for extensions of the park system, provision be made for athletics and field sports for adults, as well as playgrounds for children of all ages.

[2] Evan H. Tucker, *chairman;* Hon. Dwight F. Davis, A. M. Holcombe, Dr. Frank W. Ballou, Wm. G. Henderson, Miss Grace L. Temple, Mrs. W. DuBois Brookings, Arthur Hellen, Philip L. Walker.

Announcements

The Medal of Honor of the Société des Architectes Diplômés par le Gouvernement, given from time to time to laymen for distinguished service in the advancement of art and architecture, was awarded this year to Mr. Charles Moore, for many years chairman of the National Fine Arts Commission, in Washington, at a dinner given by the Société at the Metropolitan Club, New York, 1 March, at which addresses were made by His Excellency the French Ambassador, M. Jusserand; Mr. Royal Cortissoz, Mr. Moore, Dr. John H. Finley of the New York *Times,* and Mr. Chester H. Aldrich of Delano & Aldrich, president of the American Group.

The medal given by the Société to the school of architecture with the best record of accomplishment for the year was awarded to Yale University School of Fine Arts, on 3 March, at the University, with addresses by Mr. Aldrich, who presented the medal, and President Angell of Yale.

UNDER the auspices of The Institute of International Education, Professor Albert C. Phelps, Cornell University, College of Architecture, will again, as in 1923, act as leader for a group of architectural students in Europe

next summer. The purpose of these tours is to provide educational travel at a minimum cost and full particulars may be had from The International Institute, 522 Fifth Avenue, New York City.

Jurisdictional Awards

Setting of Bathroom Accessories

[Subject of dispute between the Bricklayers, Masons and Plasterers' International Union and the United Association of Plumbers and Steam Fitters.]

Decision Rendered 14 November, 1923.

All bathroom accessories, except those covered by decision rendered 4 December, 1920, placed after finished tile wall surfaces are completed, shall be set by the United Association of Plumbers and Steam Fitters. When anchors for bathroom accessories are built into finished tile wall construction, the setting of same shall be done by the Bricklayers, Masons and Plasterers' International Union; and when any such anchors are placed after finished tile wall surfaces are completed, the work shall be done by the United Association of Plumbers and Steam Fitters.

Setting of Alberene Stone Slabs Used as Drain Boards or Backs in Connection with Sinks

[Subject of dispute between the Bricklayers, Masons and Plasterers' International Union and the United Association of Plumbers and Steam Fitters.]

Decision Rendered 14 November, 1923.

In the matter of the controversy between the Bricklayers, Masons and Plasterers' International Union and the United Association of Plumbers and Steam Fitters over the Setting of Alberene Stone Slabs Used as Drain Boards or Backs in Connection with Sinks, it was decided that the Setting of Alberene Stone Slabs Used as Drain Boards or Backs in Connection with Sinks is the work of the United Association of Plumbers and Steam Fitters.

Cement Survey

The Secretary of Commerce has appointed an advisory committee to make a comprehensive survey of the properties and uses of cement and concrete. The Committee will co-operate with the Bureau of Standards and officials of the Department, and consist of John Lyle Harrington, chairman, engineer, Kansas City, Mo.; C. H. Boynton, cement manufacturer, New York, N. Y.; N. Max Dunning, A.I.A., Chicago, Ill.; H. C. Turner, contractor, New York, N. Y.; Charles M. Upham, highway engineer, Raleigh, North Carolina.

Research work is now being carried on by the Bureau of Standards and by various public and private research laboratories and commercial and professional organizations in the properties, characteristics and proper use of cement; in the improvement of methods, equipment and appliances tending toward improved efficiency and economy; the seasonal use of cement, especially in winter weather, important in its relation to continuity of employment of labor and the elimination of "peaks" and "depressions" and the even spread of manufacture and distribution.

It is proposed through the survey to co-relate for the benefit of the industry and the public the results of such scientific and technical activities and to center in and under the direction of the Department of Commerce a thorough and disinterested study of the entire subject.

From Our Book Shelf

Christian Art

Mr. Strzygowski approaches his subject from a purely scientific point of view.[1] There is hardly a page which is not a record of exhaustive and painstaking research and it would therefore be outside the province of an architect reviewing the book for an architectural journal to attempt to give this work its proper place in a purely scientific field. On the other hand, the study of architecture is necessarily a science, and it is not until architecture becomes creative that it is an art.

To all architectural students (and I do not limit these to the college variety) the book should be of great value in spite of rather difficult reading, largely because of the great breadth of the field which is opened to their investigation. While few architects could be expected to have the technical training necessary to follow the author to all of his conclusions, the book is nevertheless as invitation to escape from any preconceived and narrow limitations and to seek the sources of inspiration with a freedom they have not generally exercised.

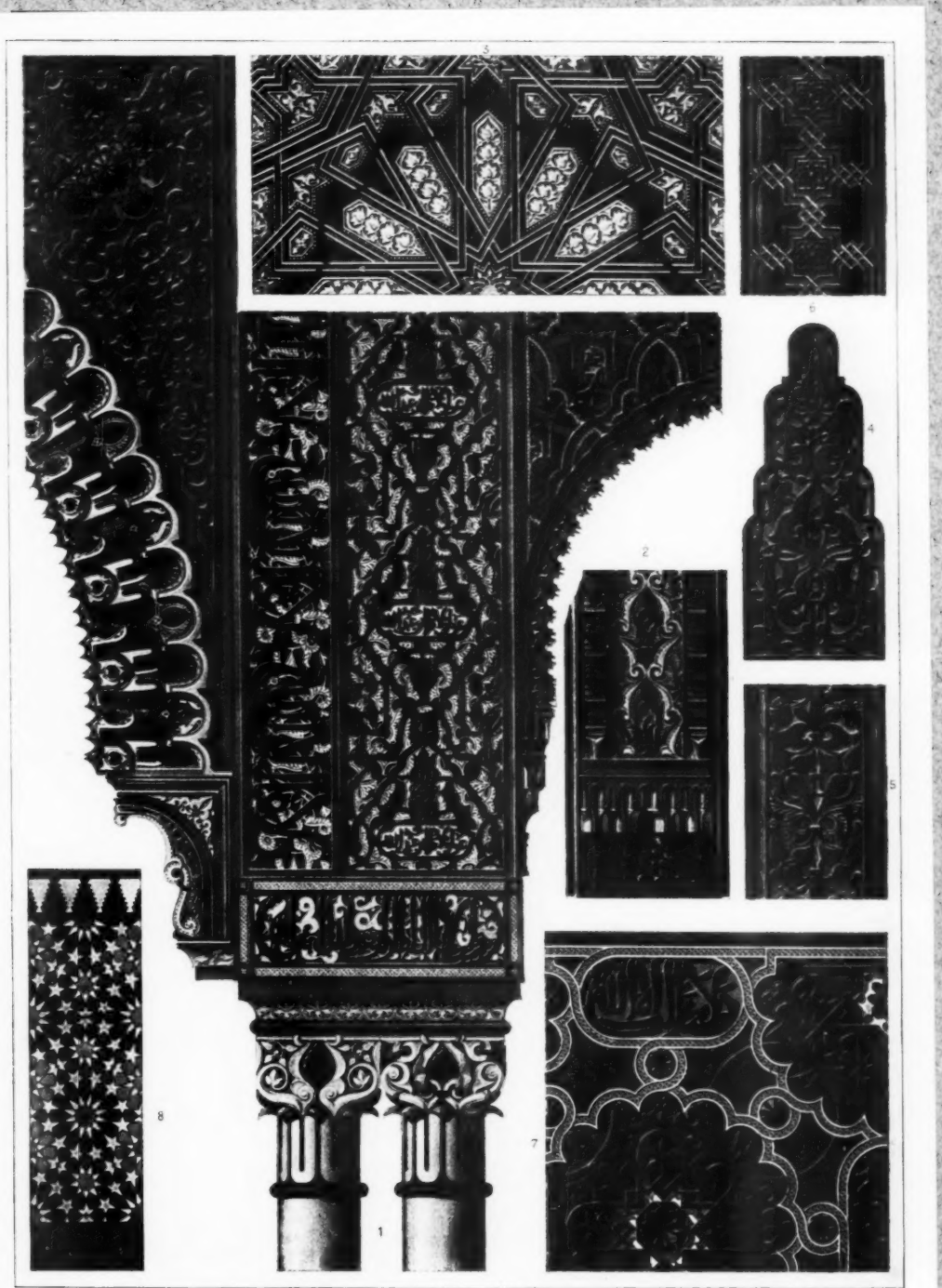
Mr. Strzygowski has summed up the previous study of the origin of Christian church art as being roughly limited by the history of the Christian Church from the western point of vew; that is to say, lying chiefly between converging lines meeting at Rome and finding the first sources in the catacombs of that city.

Opposed to this limited survey, the author points out that the Christian faith had its origin in an oriental setting; that it spread freely to the eastward and to the North during the early centuries which marked opposition to it in the West and notably in Rome; that its spread to the East and North covered as great a territory as it ever reached to the West, and that during this period up to the fourth century, while it had little or no opportunity to express itself in Rome, it was expressing itself through the native art forms of the countries where it met no opposition.

From this broad approach the author brings Christian art into the West during the fourth century fully equipped with the domed and barrel-vaulted architecture of the countries which had nourished it, and with their systems of decoration, the most characteristic of which were the rich linings of the interiors. The author points out the characteristic classic building of the earlier period with highly developed façade and the great modification of this type resulting from the vaulted and domed forms coming from the East.

Turning to the West, he uses the church architecture of the British Isles as a further illustration of his contention that Christian church art was built upon the native tradition of the lands which embraced Christianity to a much greater extent than is generally conceded by those who have treated it as a growth following the

[1] *The Origin of Christian Church Art*, by Josef Strzygowski. Translated from the German by O. M. Dalton, M.A., and H. J. Braunholtz, M.A. Oxford University Press, American Branch, New York, 1923.



THE ALHAMBRA
DETAIL OF ORNAMENTATION
1-5—Lion's Court
6-7—Two Sisters Hall
8—Tile Mosaic Wainscot;
Dressing Room of Lindajara

progress of the Church from Rome throughout western Europe.

As an illustration of this contention he uses the marked resemblance between the square tower or keep with buildings clustered around its base and the form taken by the churches and cathedrals of Britain in the later centuries. The author sums this up in the following words:

"Just as there was never a single and uniform Christianity, so from the very first there was never a single stem, far less a single root, from which Christian Art sprang. On the contrary, the time when there was still no uniformity in the Church and still no Christian State was precisely that when the controlling factor was the national spirit, which varied from one people to another."

In a way, Mr. Strzygowski has done for Christian church art what Mr. March Philips has done in another manner in his book on *Form and Color*, and what Mr. Rihbany has done in his book *Wise Men from the East and from the West*, by the suggestion that we can no longer regard the classic and mediæval tradition as two separate and distinct forms of expression hostile to each other, but that through Christian art we discover the intellectual characteristics of the classic tradition merged with the spiritual characteristics of the East. Mr. Strzygowski, however, goes somewhat further and implies the complete overthrow of the original influence of Greece and Rome by the art of the East and the North; the birth of the Renaissance being the logical result of this overthrow and being in Italy the same desire for expression of the national spirit which had influenced mediæval art in other parts of Europe.

In comparatively recent years we have come to appreciate the art of the Far East and of primitive peoples throughout the world. This appreciation has been reflected in our modern art by fresher and more vigorous notes in our modern work. Historic styles are handled with greater freedom and our efforts are less often slavish copies of ancient examples.

Mr. Strzygowski's book is a distinct contribution to this movement in the field of Christian church art and, while disclaiming any qualifications for passing upon its exhaustive scientific content, I can commend it to the student of church art, believing that it cannot fail to open his horizon to a wealth of fresh inspiration.

The book itself is very well presented and were it not for its highly technical character would be a pleasure to read. The type and illustrations invite the reader and it is almost entirely free from the mass of footnotes and quotations from Greek, Latin and French which usually burden a technical work. The argument is frequently marred by undue insistence on the value of the personal views of the author as expressed in previous writings and the very considerable bibliography does not suggest a very catholic field for reference.

M. B. M., Jr.

Furniture

In his Foreword[1] Mr. Tipping says: "When I was young, few wanted to know the origin and date of the chair they sat on or the table they wrote at. Now many do, and quite a body of literature on the subject has arisen. Surrounded by it, and yet merely needing light on some few and simple points, the amateur of old furniture feels like looking for a needle in a bundle of hay. He longs for some small yet compendious volume that will just not omit what he is likely to want to know, and not include a lot which is extraneous and confusing.

"Here he has it. By a careful and intelligent scheme of inclusion and exclusion the author gives the requisite amount and the needed kind of information, presented clearly and agreeably by the apt partnership of letterpress, photographic reproduction, and measured drawing. The reader can readily obtain a correct and comprehensive idea of when furniture, of any leading type, came into use, and of how it was altered in form and detail as time went on. He will also learn what, at various periods, was its substance, and what the mode of its construction.

"All this Mr. Rogers knows about and practices. Moreover, he has shown selective acumen in choosing and marshalling his materials. Thus he has been able to combine terseness with truth, considerable technicality with perfect intelligibility. Many will find his book a helpful companion and a reliable friend."

That in itself is a fair review of the volume. But something may be added. The importance of the many plates of isometric drawings which disclose how the craftsmen of the several periods went to their work—how they put things together—may well be stressed. These plates disclose an unusually intimate knowledge of the subject handled; and they aid one in appraising the art of furniture building as it has taken definite shape out of the material ways and means at hand and under the guidance of various aims comprehended in the day's work of the craftsmen.

Passing the letterpress, the photographs and the drawings in a sweeping review, one gains an insight into the shifting fortunes of the industrial arts over the period in question—the early fifteenth to the early nineteenth century in England. What makes for the changes in form and in design is quite as interesting as the things themselves: to the circumstances attending change the author devotes much space. From the time when English oak logs went through a long process of seasoning—months or years in the water, years in the air—when the material, after it had been fashioned in the rough and mortises and tenons cut to approximate dimensions, was put aside while the work was allowed to take its final "set" before being finally fitted and primed—when little glue was used—one passes to the time when veneering ceased to be a matter of decoration and became a business proposition. From the time when form was a direct outcome of considerations of strength and durability—when ornamentation was subordinate to the structural necessities as conceived by those whose work involved the shaping of materials and the fastening together of pieces of wood—one passes to the time when architects, decorators and executives busied themselves in borrowing exotic forms, trusting to the skill and dexterity of the rapidly disappearing craftsmen to translate their modes into materials as best they could.

[1] *English Furniture, Its Essentials and Characteristics*, by John C. Rogers, A.R.I.B.A., with a foreword by H. Avray Tipping, M.A., F.S.A.

Which gives rise to speculation. What is to be said of the new forms and designs which came out of the changing order of things—the introduction of the architects, decorators and executives as directing factors? Are the two expressions to be compared and appraised? Perhaps it would be futile to attempt an appraisal as between what the handicraftsmen produced out of their own capacities and what they produced under the guidance of others. But, taken in connection with a wider scope than is afforded by the volume—carrying the review over into the following century, one may conceivably view the introduction of these directing factors as the first signs of decay. It is not that they served as causal factors—they came in to take over the work of supplying what the incoming industrial system was rapidly destroying. Their accomplishment, after all, rested on what could still be turned out by a vanishing group of handicraft workmen.

In popular apprehension, Chippendale, Hepplewhite and Sheraton were craftsmen who produced furniture. "A small quantity of fine furniture can be traced to the Chippendale firm—none with certainty to Thomas Chippendale's own hand. Nothing extant can be assigned to George Hepplewhite or to the firm of A. Hepplewhite & Co., which was formed after his death in 1786. And of 'Sheraton' furniture the same applies, it being even doubtful whether Thomas Sheraton actually 'made' as a practical craftsman after coming to London in 1790."

Of the books on decoration and furnishing published between 1739 and 1816 the author says: "These, with the possible exception of Sheraton's books, are really trade lists, illustrated with designs likely to interest wealthy patrons. They indicate the appreciation of advertisements and the laborious means of carrying it into effect in those days. . . . The perusal of these books leaves the reader rather cold, the numerous line engravings being most uninspiring and many of them are vulgar in their excess of ornament: the perspective is distinctly humorous."

No doubt there are many—perhaps a majority would assign to the work of the later period associated with these well-known names a higher place than to the work of the preceding periods which came from the hands of unknown craftsmen. But however the work of the later period may be rated with reference to what had gone before, it is hardly to be denied that the new industrial process which then took effect held little or nothing in store to fertilize creation. For what has followed since has been a matter of borrowing. F. L. A.

Town Planning

The subjects in the very complete catalogue[1] of the Gothenburg Town Planning Exhibition cover housing, civic centers, public and other buildings, garden cities, town planning, regional planning, industrial developments, waterways, though the principal stress is on the city plan. The scope is international. The name Russia is absent, but Latvia, Finland, Czechoslovakia, Austria, Germany, Norway and Sweden, France, Switzerland, Italy, Spain, Belgium and Holland, China, Japan, the British Empire and the United States are represented.

American plans are summarized and illustrated in the catalogue, and the university groups of America attracted considerable attention abroad. The astonishing number of town plans in European cities is a great contrast to what is done in America. The lack of such a city plan in our big American cities—New York, Philadelphia, Boston, Baltimore—is very evident. There is, of course, a question of how far it is advisable to go when making a city plan in detail, but the example of foreign cities would indicate chiefly that it is advisable to go into detail. The success of the English edition of the catalogue is largely due to Mr. Werner Hegemann, well known in America, where he practiced in Milwaukee, and also on account of his monumental work on Civic Art, published in New York under the name of the "American Vitruvius."

The Housing and Town-planning Act was passed in 1909 in Great Britain, and it is interesting to note that under the recent amendments, all towns of over 20,000 inhabitants are required to have a town plan, and the ministry of health may require plans for places of smaller size. Many civic surveys have been prepared. Regional plans have been developed through the agency of joint committees made up from towns interested, five or ten in number, though in the Manchester region seventy-three are represented. In all, there are about 200 town plans in Great Britain.

Denmark has a classification: "Old towns that grew without a plan"—something like Topsy, who "just growed." Then "Towns laid out on preconceived plans," e.g., Helsingfors, 1658. There are many plans of Copenhagen, including an interesting and perhaps practical saw-tooth harbor plan; also garden villages, parks, "cemenleries," athletic grounds, developments of a church surrounding, and of a railway station site; types of buildings, row-houses, municipal housing, commercial building.

Helsingfors is a great surprise to most Americans. It had a plan in 1817. Most of the other early Finnish towns had been destroyed by fire, and were rebuilt on a dreary gridiron plan with wide streets, all with no attention to appearance. The plan of Greater Helsingfors, by Eliel Saarinen, covers five times the area of the plan of 100 years before.

Amsterdam and about twenty other towns have commissions to give advice either to the builders, or to the authorities who have the privilege of refusing permits if plans are not likely to ensure beautiful buildings. Permission for demolition of historical or characteristic buildings indicative of the early life of the city or essential to well-known points of view may be put into the hands of these commissions, as the Dutch, unlike France, have no law for the preservation of "Monuments Historiques." The city governments have the power to prohibit advertising if objectionable in appearance and there are some county restrictions to prevent marring the landscape by advertisements.

One hundred and twelve pages cover the history of city planning and present architectural conditions in

[1] Catalogue of The International Cities and Town Planning Exhibition. Gothenburg, Sweden, 1923; 390 pp.; 6¾ x 9½; fully illustrated.

Sweden: The Origin and Development of Swedish Towns. Industrial Settlements. Towns built up by steam and electricity. Town planning in Sweden after 1850—the period of the first railway, steam navigation and harbor development. The 1874 building law includes directions for town plans, revised in 1907. In Stockholm itself was a new architectural note. Such buildings as the City Hall at Stockholm came as a great surprise. A good criticism is that buildings that cost four millions should not be used for novel or untried effects, but a delightful mediæval character in a good modern building without the use of hackneyed details is certainly to be commended.

The United States section includes reports and plans from New York, Boston, the port of Philadelphia, Indianapolis, St. Paul, Pittsburg, Portland (Ore.); groups of college campuses, civic centers, world's fairs.

The English edition of this very remarkable town planning catalogue is a well-printed volume of 390 pages with about that number of illustrations of plans and photographs collected from all around the world.

FRANK A. BOURNE.

A City Planning Manual

City planning, regional planning and zoning are but methods of bringing order out of the physical chaos that results from the haphazard building of individual units in populous areas. The logical orderly and rhythmical arrangement of buildings is the work of the architect, and as buildings are the chief physical characteristics of populous areas, the architect must be called upon sooner or later to act as guide in providing plans for aggregates of buildings and remodeling those aggregates that have been badly started. More than that, as a broadly trained and public spirited citizen, he should become a leader in the bringing of this order out of chaos.

In a way both remarkably concise and remarkably clear Miss Kimball has brought together in her "Manual"[1] information extremely valuable to the city planner, whether he be one whose interest is but newly aroused, or whether he be one whose shelves are crowded with volumes and the innumerable reports which have been appearing so rapidly in the last decade.

From her long experience as Librarian of the Schools of Landscape Architecture of Harvard and Honorary Librarian of the American City Planning Institute (for which she compiled at one time a smaller bibliography) Miss Kimball has had ample opportunity to know what are the questions which confront the would-be city planner and the best books and material to which he should be referred. "The first part of this book," says the preface, "is directed more especially to those just beginning their studies in this field." It is a brief statement of what city planning and zoning are, with lists of books—the best ten, and the best twenty-five to read, and the best magazines on the subject; organizations that are backing city plan movements; lists of city plan reports and municipal appropriations; suggestions on conducting publicity campaigns with lists of lantern slides and films available.

The second part of the book is taken up with an extensive bibliography of 115 pages arranged under such heads as "History," "Laws and Court Decisions," "Civic Surveys," "Channels of Transportation," and so on. At the end of this is an "Index to the Bibliography" with more subjects indicated. New subjects, such as areal maps, are given especial attention.

With this book in hand one need not consult the librarian of a public library, nor yet hunt for hours among the treatises and reports on one's own shelves for references on any given topic of city planning. The volume has no illustrations to catch the eye of the tired business man.

It is a reference work for the student and the practical architect. It is up to date; it is comprehensive, though not bulky; it is scholarly and yet practical.

GEORGE H. GRAY.

[1] *Manual of Information on City Planning and Zoning, including References on Regional, Rural, and National Planning*, by Theodora Kimball, Librarian, School of Landscape Architecture, Harvard University Honorary Librarian, American City Planning Institute Associate, British Town Planning Institute. Harvard University Press.

New Members Elected

Albert E. Ferran, Jean Jacques Haffner, *Cambridge,* BOSTON; Frederick C. Backus, BUFFALO; Thomas E. O'Donnell, *Urbana,* CENTRAL ILLINOIS; John S. Small, *Evanston;* Wallace Franklin Yerkes, Hubbard Woods, Pierre Blouke, Charles Bohasseck, Frank A. Childs, Frank Garrison Dillard, Clarence W. Farrier, Frederick Hodgdon, Joseph Bernard Lindquist, Philip Brooks Maher, Louis E. Ritter, CHICAGO; Joseph A. Garvin, F. W. Ireland, Jr., Roland W. Linder, Oscar G. Stromquist, DENVER; Herbert Baumer, COLUMBUS; Harold Heath Davis, *East Haven,* CONNECTICUT; Clarence E. Shepard, KANSAS CITY; Albert F. Klein, *Ashland,* KENTUCKY; William Duncan Cuthbert, *Ann Arbor;* Frank Henry Wright, *Flint;* Leo M. Bauer, Joseph Ivan Dise, Clair William Ditchy, *Detroit,* MICHIGAN; Chester B. Price, NEW YORK; A. L. Beneker, *Raleigh,* NORTH CAROLINA; Francis A. Berner, Paul W. Irwin, Herbert Meredith McCullough, William Richard Perry, James P. Piper, Hyman Louis Rubin, P. Howard Sterling, PITTSBURGH; Earle B. Bertz, SAN FRANCISCO; Carlton Brush, *Nashville,* TENNESSEE; N. E. Weidemann, *Beaumont;* Bardford Hardie, Jr., *El Paso,* TEXAS; Robert Leon Albert, Norris Ingersoll Crandall, WASHINGTON, D. C.

Letters to the Editor

TO THE EDITOR OF THE JOURNAL:

In response to a request to the Structural Service Committee of the Institute for information concerning waterproofing compounds and processes, I am given an abstract which appears in this number of the JOURNAL.

This abstract is a most illuminating document, not only with respect to the value of several materials and processes used for waterproofing; it sheds light on the effect of salesmanship upon the industrial processes of building. One gathers from this abstract that but a few of the commonly

employed processes of waterproofing amount to any more than a ceremonial—it has the same effect upon a structure as the laying of a cornerstone or the dedication of the building. That is to say, some of the processes of waterproofing are traceless in their effect.

If such be the case, of course, it is well that we should be advised of it. For with the present cost of building imposing upon us and our clients, the elimination of much that makes for adequacy and durability, it becomes all the more important to know what is of dubious value or utterly useless. So this abstract may be carefully studied; it will well repay the effort.

A word also may be allowed concerning the significance of this study of the value of these compounds and processes. That so many of them should appear to be of no more value than the Bureau of Standards report indicates, that some of them should appear to be of no value whatsoever—all this points to the pertinence of some recent observations as to the needs of "debunking" the building industry.

"Debunking" is a new term and will be variously defined. Some will hold that "debunking" means clearing the decks of ignorance, petty concealments, deceit and fraud. This may be a good and accurate definition of "debunking." But "debunking," in the light of this abstract, may be viewed as a more difficult problem than clearing away qualities of human endeavor, difficult as that would be. Building is no longer the simple industrial process that it once was. It is primarily a matter of selling. And it is the activity of selling that accounts primarily for the scores of "alternate" or "substitute" materials and processes with which we have to deal. It is the activity of selling that accounts for the use of useless material in the first place, and it is alone the activity of selling that accounts for the continued use of a perfectly useless material. If we take the matter of "debunking" seriously, surely the first step is so to organize that decision with respect to the use of a material or a process will rest solely upon adequate scientific tests and not upon the glib talk of salesmen.

FREDERICK L. ACKERMAN.

Obituary

Pierre L. Le Brun

Elected to the Institute in 1874
Elected to Fellowship in 1883
Died at New York City, 14 February, 1924

The New York Chapter of the American Institute of Architecture records the death of Pierre L. LeBrun with this tribute prepared by Mr. Julian Clarence Levi.

The simple facts of his life recorded in the archives of the New York Chapter epitomize to his friends and associates his sterling qualities. Son and brother of an architect, his entire manhood was given to the practice of that profession and to its advancement as an art. In partnership with his father, Napoleon, and his brother Michel, he contributed many notable buildings to the growth of New York City. The completion of the Metropolitan Life Tower in 1910, marking the close of a long and honorable career, became the occasion of the award of the New York Chapter Medal of Honor to the brothers Pierre and Michel.

Mr. LeBrun's interests, however, were not limited to his practice. He was alive to the necessity of enabling the American architect to obtain a proper education. His extensive travels abroad aroused his sympathy for those, less fortunate than he, who were unable to see the monuments of European civilization. To mitigate this condition he formed the Willard Collection of Architectural Casts in the Metropolitan Museum of Art, and later followed it by the gift of the Pierre L. LeBrun Library to that Museum. A similar gift to the Montclair Art Association established an Art Library in its Museum.

So did he labor to enable young America to learn of the beauties of the past, but still he remained unsatisfied for the inpiration of direct contact was lacking. After mature deliberation and careful study he achieved this end in the establishment of the Traveling Scholarship in 1910. The wisdom of his decision and its real value to the profession of architecture has been amply proved by the distinguished records of the LeBrun scholars.

His earthly labor are ended, but yet his work will go on. The kindly gentle spirit has flown, but its influence remains to help mould future generations. His fellows in the New York Chapter wish to record their respect for him as an architect, their affection for him as a man and their gratitude to him for the honor he bestowed upon their profession.

D. EVERETT WAID, *President.*
HOBART B. UPJOHN, *Secretary.*

Henry William Hill, F.A.I.A.

Elected to Associate Membership in 1884
Elected to Fellowship in 1887
Died 16 January, 1924

Henry William Hill, who practiced architecture in Chicago for thirty-nine years, died in Hamburg, Germany, 16 January, 1924, following an operation for appendicitis.

Mr. Hill was born in Elmshorn, Holstein, Germany, 29 January, 1852. After completing his studies at the Polytechnic School in Hamburg he came to Chicago in 1872, working for different architects until 1875, when he became the partner of James J. Egan, practicing as Egan & Hill, Architects. In 1881 he joined Augustus Bauer under the firm name of Bauer & Hill. When Mr. Bauer retired in 1894, Mr. Hill associated with himself Arthur Woltersdorf, which association continued in practice as Hill and Woltersdorf up to Mr. Hill's retirement 1 August, 1914. Immediately after his retirement he took up his residence in his birthplace, Elmshorn. Mr. Hill had not been in this country since his retirement. He was honorary member of the Chicago Chapter, A.I.A., and of the Illinois Society of Architects.

ARTHUR WOLTERSDORF.

Structural Service Department

LEROY E. KERN, *Technical Secretary*

In connection with the work of the Committee on Structural Service of the American Institute of Architects and in collaboration with other professional societies and organized bodies having the same objective—improvement in building materials and methods and better shelter for humanity in all its manifold vocations and avocations

Abstracts

It is the purpose of the Structural Service Committee and THE JOURNAL *jointly to give in this division, each month, brief abstracts of all publications by the Government Departments and Bureaus, University and other research laboratories, States and Associations, which contain fresh information in regard to materials or methods employed in construction and thus accord architects and others a convenient means of keeping themselves conversant with rapidly expanding knowledge in the technique of construction.*

Exposure Tests on Colorless Waterproofing Materials

(7b21) (*Based on or Abstracted from Technologic Paper of the Bureau of Standards No. 248. By D. W. Kessler. Pages* 33. *Size* 7" x 10" *illustrated.*) Investigation was started about 2½ years ago and a preliminary report was issued at the end of a 6-month period, an abstract of which appeared in the November 1921 JOURNAL. The present report is a continuation of the work over a period of about 2 years, with additional tests started at a later date.

Treatments, applied in accordance with the producers' directions, in most cases consisted of 2 coats of material applied with a brush at 24-hour intervals. Specimens were weather exposed on a roof. In longer period tests there are a few duplications of the same material on different stones, showing that different treatments do not act with an equal degree of effectiveness on different textures; this led to a rather extensive series of tests on stones of varying texture, which, including tests of all waterproofing materials on three Ohio sandstones, has extended over a period of 6 months.

Description of Stones Used in the Tests. Samples of limestone were all from around Bedford and Bloomington, Ind. (the well-known oolithic limestones.) Textures are classified as "fine," "medium," and "coarse." The sandstones gave a somewhat wider range in textures than the limestones, the fine grained stones being considerably finer in texture than the "fine" limestones.

Description of Waterproofing Materials. Treatments consisted of 20 proprietary materials, 1 proprietary process and 2 nonproprietary processes. Proprietary materials were submitted by the producers; the others were made up in the laboratory. **For the latter tests a new set of proprietary samples were requested; and, when analyzed, some were found to differ considerably in composition from those of the same name in the first set.[1] In one case a material had been taken over by another firm and changed in name and composition.[2]**

Materials are referred to by reference letters: A, B, C, etc. In the second set of samples the materials are referred to as A′, B′, C′, etc., in which A′ is to the same trade name as A, B′ the same as B, and so on.[3]

Groups of Materials.—For convenience, materials have been divided into 5 groups, according to composition. (See following column.)

[1] For examples of radical changes, see F, F′ and K, K′; of material changes, see I, I′ and D, D′; of slight changes, see M, M′, S, S′ L, L′ and J, J′.—*Ed.*

[2] Probably Aquabar and Cresolac.—*Ed.*

[3] In some cases further information can be furnished by the Scientific Research Department of the A. I. A.—*Ed.*

Trade Names and Producers of Materials

Lithol. Arabol Manufacturing Co.
Minwax. The Minwax Co.
Clear Driwal. The Billings Chapin Co.
G. F. 100. General Fireproofing Co.
G. F. 145. General Fireproofing Co.
Ceresitol. The Ceresit Waterproofing Co.
{ Aquabar No. 2. The Aquabar Co.
{ Cresolac. Crescent Sales & Mfg. Co.
Kemisol. Morene Products Co.
Dehydratine No. 2. A. C. Horn Co.
Dehydratine No. 22. A. C. Horn Co.
Dehydratine No. 222. A. C. Horn Co.
Colorless Waterproofing. Northwestern Waterproofing Co.
Glidden's Colorless Waterproofing. Glidden Varnish Co.
Anhydrosol. Toch Bros.
Toxloxpore. Toch Bros.
Reduced 1017. Toch Bros.
Caffall's Process. Obelisk Waterproofing Co.
Porseal. The Truscon Laboratories.
Sylvester's Process. Non-proprietary.
Paraffin in Gasoline. Non-proprietary.
Gar-Kem. Gardner-Barada Chemical Co.
Pyramid. Pyramid Chemical Co.

Composition of Materials.—Because of their nature, chemical analyses may not indicate the exact proportions originally used. Hence, results are in round numbers and are merely to show the general nature of materials and serve as a basis of classification.

Several are not very stable even in the containers. All must be kept airtight. Even when sealed in containers, a considerable number of the treatments tend to separate after a few months; this is especially true of those which carry fatty substances, and aluminum soap in solution. Those having only paraffin in solution appear to be most stable among the organic compounds. Water solutions are fairly stable, except those containing glue, which decomposed in some cases.

Materials in Groups 1 and 2, especially those containing a large percentage of nonvolatile matter in solution, become very thick and even solid in cold weather. Damp surfaces will not absorb treatment properly, hence they should be applied during dry weather.

Group 1.—Petroleum distillate (including paraffin), fatty substances, and mixtures of the two dissolved in mineral spirits. Petroleum distillates consist of paraffin or similar fractions; the mineral spirits are the light distillates of petroleum. A fatty substance frequently found in them is china wood oil. When applied to stone they penetrate into the pores, and as the light volatile solvents evaporate a considerable portion of the waxy or fatty substances held in solution is deposited there, constituting the waterproofing element.

Material M:

Color	Clear, slightly yellow
Odor	Mineral spirits
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	86 per cent
Character	Mainly mineral spirits
Nonvolatile (24 hours at 105° C.)	14 per cent
Character	Paraffin

Material M′:

Color	Clear, water white
Odor	Mineral Spirits
Consistency	Very thin liquid
Volatile (24 hours at 105° C.)	88 per cent
Character	Mineral spirits
Nonvolatile (24 hours at 105° C.)	12 per cent
Character	Chiefly paraffin

Material S:

Color	Cloudy
Odor	Mineral spirits
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	93 per cent
Character	Mainly mineral spirits
Nonvolatile (24 hours at 105° C.)	7 per cent
Character	Paraffin

Material S':

Color	Water White
Odor	Mineral spirits
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	85 per cent
Character	Mineral spirits
Nonvolatile (24 hours at 105° C.)	15 per cent
Character	Paraffin

Material U:

Made up in laboratory. Approximately 10 per cent solution of paraffin in gasoline.

Material B:

Color	Clear yellow
Odor	Mineral spirits
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	67 per cent
Character	Mineral spirits
Nonvolatile (24 hours at 105° C.)	33 per cent
Character	China wood oil and paraffin

Material B':

Color	Clear yellow
Odor	Mineral spirits
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	67 per cent
Character	Mineral spirits
Nonvolatile (24 hours at 105° C.)	33 per cent
Character	China wood oil and paraffin

Material I:

Color	Light amber
Odor	Mineral spirits
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	62 per cent
Character	Petroleum distillate
Nonvolatile (24 hours at 105° C.)	38 per cent
Character	Fatty oil and paraffin

Material I':

Color	Dark yellow
Odor	China wood oil
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	26 per cent
Character	Petroleum distillate
Nonvolatile (24 hours at 105° C.)	74 per cent
Character	China wood oil and paraffin

Material D:

Color	Light yellow
Odor	China wood oil
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	90 per cent
Character	Mineral spirits
Nonvolatile (24 hours at 105° C.)	10 per cent
Character	China wood oil and paraffin

Material D':

Color	Dark yellow, cloudy
Odor	Mineral spirits
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	24 per cent
Character	Mineral spirits
Nonvolatile (24 hours at 105° C.)	76 per cent
Character	China wood oil and paraffin

***Group 2.*—Aluminum soap or mixture thereof with heavy petroleum distillates, fatty or resinous substances dissolved in mineral spirits, coal-tar naphtha, or turpentine. They act similarly to those in Group 1.**

Material C:

Color	Cloudy brown
Odor	Varnish like
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	96 per cent
Character	Mainly mineral spirits
Nonvolatile (24 hours at 105° C.)	4 per cent
Ash	13 perc ent
Character	Aluminum soap

Material C':

Odor	Turpentine
Color	Cloudy yellow
Consistency	Thin syrupy liquid
Volatile (24 hours at 105° C.)	96 per cent
Character	Turpentine mineral spirits
Nonvolatile (24 hours at 105° C.)	4 per cent
Ash (aluminum oxide)	18 per cent
Character	Aluminum soap

Material F':

Color	Cloudy, dirty yellow
Odor	Benzol
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	97 per cent
Character	Mainly mineral spirits
Nonvolatile (24 hours at 105° C.)	3 per cent
Ash (aluminum oxide)	6.4 per cent
Character	Aluminum soap and waxy material

Material K':

Color	Milky
Odor	Coal-tar distillate
Consistency	a viscous liquid which separates on standing
Volatile (24 hours at 105° C.)	71 per cent
Character	Chiefly coal tar distillate
Nonvolatile (24 hours at 105° C.)	29 per cent
Ash (aluminum oxide)	7.2 per cent
Character	Fatty oil and aluminum soap

Material L:

Color	Dark brown
Odor	Petroleum distillate
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	93 per cent
Character	Petroleum distillate
Nonvolatile (24 hours at 105° C.)	7 per cent
Rosin test	Positive
Ash (aluminum oxide)	6.4 per cent
Character	Mainly aluminum soap

Material L':

Color	Clear dark yellow
Odor	Petroleum distillate
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	88 per cent
Character	Petroleum distillate
Nonvolatile (24 hours at 105° C.)	12 per cent
Ash (aluminum oxide)	2.4 per cent
Character	Aluminum soap and heavy mineral oil

Material V:

Color	Pale yellow
Odor	Turpentine
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	95 per cent
Character	Turpentine and petroleum distillate
Nonvolatile (24 hours at 105° C.)	5 per cent
Rosin test	Positive
Ash (aluminum test)	9.1 per cent
Character	Mainly aluminum soap

***Group 3.*—Resinous materials and mixtures of same with fatty oils dissolved in mineral spirits or coal-tar naphtha. These penetrate pores to a slight extent and usually deposit a thin film on surface. They are really light varnishes.**

Material K:

Color	Yellowish brown
Odor	Coal-tar distillate
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	62 per cent
Character	Coal-tar naphtha
Nonvolatile (24 hours at 105° C.)	38 per cent
Character	Coal-tar resin

Material O:

Color	Clear dark amber
Odor	Varnish
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	61 per cent
Character	Mainly mineral spirits
Nonvolatile (24 hours at 105° C.)	39 per cent
Character	Oils and resins
Rosin test	Positive

Material P:

Color	Clear dark amber
Odor	Varnish
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	62 per cent
Character	Mainly mineral spirits
Nonvolatile (24 hours at 105° C.)	38 per cent
Character	Oils and resins
Rosin test	Positive

Material Q:

Color	Clear dark yellow
Odor	Varnish
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	68 per cent
Character	Mainly mineral spirits
Nonvolatile (24 hours at 105° C.)	32 per cent
Character	Oils and resins
Rosin test	Positive

***Group 4.*—Water solutions of various substances claimed to react chemically with some element in the stone and**

form pore-filling substances, consisting of inorganic salts, glue, and soluble soaps.

Material E:
A 15 per cent aqueous solution of magnesium fluosilicate.

Material F:

Color	Milky
Odor	Ammonia
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	97 per cent
Character	Water and ammonia
Nonvolatile (24 hours at 105° C.)	3 per cent
Fatty matter	94.7 per cent
Ash (mainly sodium carbonate)	5.3 per cent
Character	Sodium-ammonia soap

Material H:

Color	Milky white
Odor	Glue
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	94 per cent
Character	Water
Nonvolatile (24 hours at 105° C.)	6 per cent
Character	Mainly glue

Material H':

Color	Milky White
Odor	Glue
Consistency	Thin liquid
Volatile (24 hours at 105° C.)	97 per cent
Character	Water
Nonvolatile (24 hours at 105° C.)	3 per cent
Ash (aluminum oxide)	11 per cent
Character	Glue, waxy material, and aluminum soap

Material W:

Color	Milky white
Odor	Rancid fat
Consistency	Thin liquid
Volatile at 105° C.	95 per cent
Character	Water
Nonvolatile	5 per cent
Character,	Glue with a small amount of aluminum soap and borax

Group 5.—Two aqueous solutions applied as individual treatments and reacting chemically with each other precipitating an insoluble substance in the pores. A typical example is a solution of alum, followed by a solution of soft soap, resulting in formation of an insoluble soap. (Sylvester's process.) Other treatments of this nature were tried in a preliminary way, but results were not promising, and were not included in the exposure tests.

Material T:
This is a non-proprietary process known as Sylvester's process. The materials consist of 2 ounces of alum dissolved in 1 gallon of water for the first application, and 12 ounces of soft soap dissolved in 1 gallon of water for the second coat. The reaction results in the formation of an aluminum soap.

Miscellaneous.—Two treatments do not fall under any above classification and are described separately. Treatment J is solution of cellulose nitrate in solvent similar to fusel oil, of a syrupy nature. It does not penetrate the pores appreciably, but leaves a thin film on surface. The other is the molten-paraffin process mentioned above. (See tests, Group 1.) It attains same object as some of those in Group 1 which carry paraffin into pores in solution to remain after solvents evaporate.

Material J:

Color	Clear yellow
Odor	Fusel oil
Consistency	Syrupy liquid
Volatile (24 hours at 105° C.)	93 per cent
Character	Ethyl acetate, acetone, etc.
Nonvolatile (24 hours at 105° C.)	7 per cent
Character	Mainly cellulose nitrate

Material J':

Color	Cloudy yellow
Odor	Amyl acetate
Consistency	Sirupy liquid
Volatile (24 hours at 105° C.)	90 per cent
Character	Amyl acetate and fusel oil
Nonvolatile (24 hours at 105° C.)	10 per cent
Character	Mainly cellulose nitrate

Material R:
A process rather than a material. The material used in treating the specimens was ordinary "parowax."

Results of Tests on Long-Period Exposures indicate only a few treatments were effective in preventing water absorption over several months' exposure. The few cases, however, where treatments were effective over a 2-year period seem to indicate a practical stone preservative is possible. Five proprietary materials showed little or no signs of deterioration, as far as absorption values are concerned, during those tests.

All specimens showed gradual loss in weight over entire period, not due entirely to evaporation or decomposition of treatment. In several instances waterproofing material was functioning as well at end of 20 months or longer as at start, indicating that even materials having high waterproofing values do not prevent surface solution on carbonate stones.

Results, Group 1 Materials. These also include process R, miscellaneous group.) Materials having paraffin for solid matter, entirely or in part, have shown highest waterproofing values and least deterioration, but were less effective during first months of exposure than later.

Those having mixture of paraffin and fatty oil (B and I) gave excellent results on Indiana limestone. Those having all paraffin for solid matter (M, S, U, R) gave highly satisfactory results in most cases, except for a few instances of minor relapse in the early part of test. M showed rather high absorption after 4 months exposure but thereafter no appreciable absorption was noted. Between 3 and 7 months, U permitted considerable absorption during immersion tests. After that it gave very satisfactory results.

Treatment R, entirely of paraffin with no solvent, is applied hot, and is a proprietary *process.* The only long-period test was on fine grained sandstone from New Mexico. It was not satisfactory, but should not be considered entirely fair, because the stone was greatly weakened by previous weathering. Later tests gave excellent results.

Those materials having fatty oil alone, or in large part, gave satisfactory results over several months but at the end of a year or less began to show signs of decay. For example, material A, after passing a period of almost worthlessness between 12 and 20 months, seems to have improved somewhat; D shows similar condition, but improvement at end of period is very slight.

Material G, a petroleum grease dissolved in mineral spirits, gave results very similar to these, but absorption was considerably less and treatment seems more durable.

Results, Group 2 Materials. During greater part of test these gave good results. Only materials C and L, however, are under test for over 8 months; C shows considerable deterioration at the end of 20 months; L shows less.

Results, Group 3 Materials. None gave satisfactory results. Materials P, Q, K show very high absorption values during cold months with slight decrease during summer.

Results, Group 4 Materials, have shown even less value than Group 3. Tests indicate that those supposed to react with the stone do it so feebly as to have practically no value in sealing pores. Those intended as water repellants have given no great reduction in absorption and have only temporary value.

Two materials in this group have been given considerable attention in these tests, as they have been marketed to a considerable extent and the producers claim numerous successful cases of use.

Four series of tests were made with H, none indicating any appreciable value after 6 months' exposure. A series of tests with E does not indicate even temporary waterproofing value.

Results Group 5 Materials. Gave unsatisfactory results in all tests.

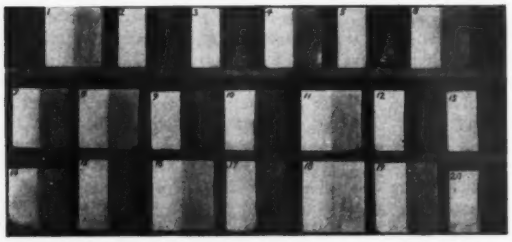


FIG. 1.—Photograph showing appearance of the waterproofing materials on limestone before exposure to the weather. The right-hand half of each slab is waterproofed.

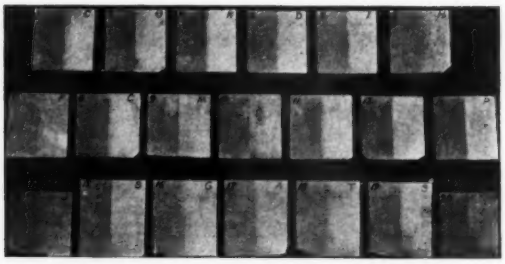


FIG. 2.—Photograph of the same slabs shown in Figure 1 after 18 months' exposure to the weather. The right-hand half of each slab is waterproofed.

Results, Miscellaneous Group. J gave even less satisfactory results than Group 5. The film which it forms on stone's surface soon became perforated and later peeled off.

Treatment R was described in connection with Group 1.

Results of Tests on Various Textures of Sandstone. Sixteen waterproofing materials were tested on each of 3 textures of stone during 6-month exposure. A′, B′, C′, and I′ were effective on coarse and medium texture stone, but allowed considerable absorption in the fine texture. To slight extent this was true with L′ and R′.

Materials M′ and S′ showed the reverse. However, this is not very pronounced and the values do not show a gradual decline, but are lowest on the medium texture.

On dense stones best results were obtained with materials D′, F′, M′, R and S′; on medium texture with B′, C′, I′, M′, R and S′; and on coarse texture with B′, D′, I′ and R. The highest waterproofing values on all stones were recorded by R.

Appearance of Treatments on Limestone. Effect of treatments on appearance of limestone has been determined by treating half one face of a slab of stone with a waterproofing material, leaving the other half in natural state for comparison. Fig. 1 shows the slabs soon after treatments were applied, and Fig. 2 after the slabs had been exposed 18 months. The right-hand half of the slabs is the treated portion, and the letters in the upper right-hand corner refer to the treatments as designated.

It will be noted that all treatments discolored the stone at first. Treatments containing rosin gave the worst appearance and all materials in Group 1 discolored considerably, but these are not permanent (see Fig. 2). Practically all slabs after 18 months appear lighter and cleaner on the treated portion than on untreated portion, due partly to gradual bleaching out of material applied and the fact that waterproofing prevents or reduces adhesion of dust, soot, etc. Original discolorations were noticeable in most cases for 6 months or longer after exposure.

Appearance of the Waterproofing Treatments on the Sandstones. On close-texture, bluish gray sandstone treatments could be said to give discolorations especially objectionable after 6 or 8 months weathering. Some appeared dark and oily at first. Treatments D′, I′, and R still showed slight effect after 6 months; E′ showed a slight yellowish brown stain, J′ showed shiny patches where surface film had not peeled off, and K′ produced an unsightly coat on surface resembling lard or tallow, mostly scaled off after 6 months.

Treatments on medium texture showing oily discolorations after 6 months were B′, D′, I′, M′ and R. Discolorations were considerably worse than on the dense stone, and would probably be considered objectionable in this respect. Treatment E gave a yellowish brown stain to a marked extent, J′ shiny patches, and K′ gave an ugly white coat like tallow, which had only begun to scale at 6 months.

On the open texture B′, D′, I′, M′, R and S′ gave oily discolorations, even more conspicuous than on medium texture; J′ and K′ showed the same appearances noted above, but somewhat more pronounced.

The producers of R have a process of removing the excess wax from the surface which serves to clear up the greasy appearance. Several specimens were submitted to this firm to determine to what extent the cleaning process would remove objectionable discolorations, and all results were remarkably good. If same degree of cleaning is practiced on actual work it could not be regarded as producing a bad appearance on any stones used.

Conclusions. The following conclusions are based upon and confined to the materials investigated:

1. The most effective waterproofing materials in this series are those the waterproofing elements of which are heavy petroleum distillates, fatty oils, or insoluble soaps.

2. Effectiveness of any waterproofing may be greatly influenced by character of pores in the stone.

3. Stones having close textures are more difficult to waterproof than those with large pores.

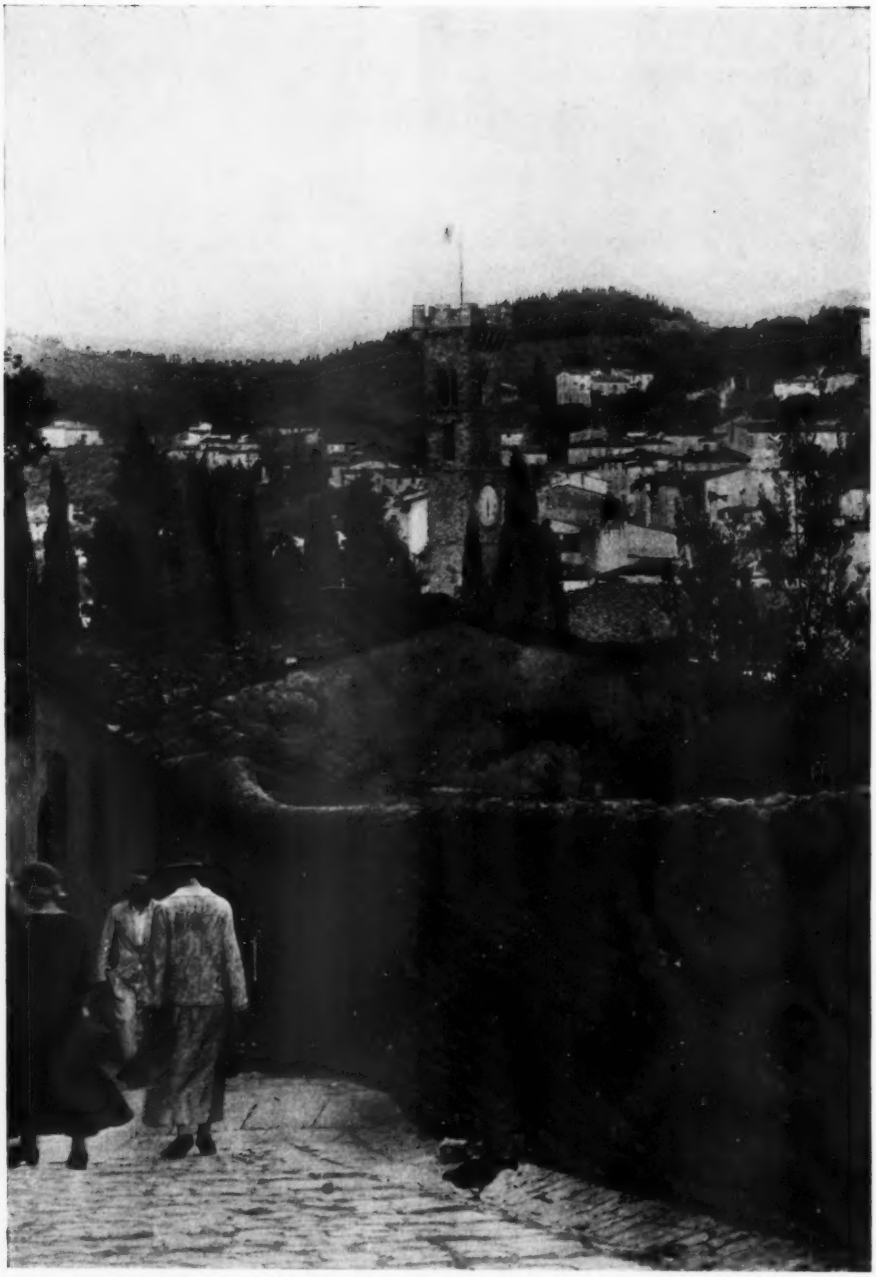
4. Treatments giving the highest waterproofing values and appearing to be most durable are those using paraffin as the waterproofing element, alone or with other materials. Deterioration or loss of waterproofing value on materials of this type is not appreciable within 2 years.

5. Waterproofing materials employing resinous substances as the waterproofing element are not durable.

6. Materials consisting of aqueous solutions, the purpose of which is to react chemically with the stone or to act merely as water repellants, have only temporary effects.

7. Separate aqueous solutions which react chemically with each other and form insoluble substances in stone pores give low waterproofing values and deteriorate rapidly.

8. In general, materials giving highest waterproofing values produced greatest discolorations, the amount being proportional to porosity of the stones. These decrease on weather exposure and after a year or more, depending upon their intensity, are compensated for by the fact that treatments tend to prevent accumulation of dust and soot on the surface.



FIESOLE
Photograph by Harold C. Whitehouse